

## White Spirit Solvent

*Issue Date:* 24.8.2020  
*Version number:* 13.0

### 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

#### 1.1 Product Identifier

*Trade name:* WHITE SPIRIT SOLVENT  
*Substance name:* Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics aromatics (2-25%).  
*EC number* 919-446-0.  
*REACH Registration No.:* 01-2119458049-33-xxxx.

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

##### 1.2.1 Relevant identified uses

##### INDUSTRIAL USES:

- 1) Manufacture of substance.
- 2) Distribution of substance.
- 3) Formulation and (re)packing of substances and mixtures.
- 4) Uses in coatings.
- 5) Use in cleaning agents.
- 6) Lubricants.
- 7) Use in metal working fluids / rolling oils.
- 8) Use in laboratories.

##### PROFESSIONAL USES:

- 9) Use in coatings.
- 10) Use in cleaning agents.
- 11) Lubricants.
- 12) Use in metal working fluids / rolling oils.
- 13) Road and construction applications.
- 14) Use in laboratories.

##### CONSUMER USES :

- 15) Use in coatings.
- 16) Use in cleaning agents.

*1.2.2 Uses advised against:* Identified uses of the product are given above. Other uses are not supported.

#### 1.3 Details of the supplier of the Safety Data Sheet

*Supplier / Manufacturer:* HELLENIC PETROLEUM S.A.  
*Street address:* 8A Chimarras Str.  
*Country / Postcode / Place:* GREECE, 151 25, Maroussi  
*Telephone number / Fax:* (+30) 2106302000 / (+30) 2106302510, 2106302511  
*E-mail:* [reach@helpe.gr](mailto:reach@helpe.gr)

#### 1.4 Emergency telephone number

*National Emergency Centre:* 166  
*National Poison Centre:* (+30) 2107793777

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

#### 2.1.1 Classification according to Regulation (EC) No 1272/2008

Flam. Liq. 3	H226
Asp. Tox. 1	H304
STOT SE 3	H336. Affected organs: Central Nervous System. Route : Inhalation.
STOT RE 1	H372. Affected organs: Central Nervous System. Route : Inhalation.
Aquatic Chronic 2	H411

#### 2.1.2 Additional information

For full text of Hazard statements, refer to section 16.

### 2.2 Label elements

#### Labelling according to Regulation (EC) No 1272/2008

##### Hazard Pictograms



GHS02



GHS07



GHS08



GHS09

Signal word: Danger.

**Hazard-determining components of labelling:** Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%).

##### Hazard statements:

- H226 Flammable liquid and vapour.
- H304 May be fatal if swallowed and enters airways.
- H336 May cause drowsiness or dizziness.
- H372 Causes damage to central nervous system through prolonged or repeated inhalation.
- H411 Toxic to aquatic life with long lasting effects.

##### Precautionary statements:

- P210 Keep away from heat, hot surfaces ,sparks, open flames and other ignition sources. No smoking.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P331 Do NOT induce vomiting.

##### Additional labelling requirements (CLP supplemental hazard statement):

EUH066 Repeated exposure may cause skin dryness or cracking.

### 2.3 Other hazards

## White Spirit Solvent

*Results of PBT and vPvB assessment:* Does not fulfil the criteria as PBT/vPvB (REACH Annex XIII).

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

#### 3.1 Chemical characterisation: Substance

**Description:**

A complex and variable combination of paraffinic, cyclic and aromatic hydrocarbons having a carbon number range predominantly of C9 to C12 and boiling range approximately between 135°C and 220°C.

- **Concentration (%w/w):** 100.
- **Name:** Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%).
- **Identification number(s):**

**EC number:** 919-446-0, **REACH Registration No.:** 01-2119458049-33-xxxx

· **Classification according to Regulation (EC) No. 1272/2008**

Flam. Liq. 3	H226
Asp. Tox. 1	H304
STOT SE 3	H336 Affected organs: Central Nervous System. Route: Inhalation.
STOT RE1	H372 Affected organs: Central Nervous System. Route: Inhalation.
Aquatic Chronic 2	H411

**Impurities and stabilising additives:** None.

**Additional information:**

For full text of H- statements, refer to section 16.

**Substances included in the candidate list of Substances of Very High Concern (SVHC):** None.

### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

**Following inhalation:** Avoid further exposure. For those providing assistance, avoid exposure to yourself and others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occur, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

**Following skin contact:** Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

**Following eye contact:** Flush thoroughly with water. If irritation occurs, get medical assistance.

**Following ingestion:** Get medical attention immediately. Do not induce vomiting.

**Notes for the doctor:** If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

#### 4.2 Most important symptoms and effects, both acute and delayed

## White Spirit Solvent

### **Symptoms:**

- **Inhalation:** Moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
- **Skin contact:** Moderate skin irritation, defatting and dermatitis.
- **Eye contact:** Tearing and reddening, but not likely to permanently injure eye tissue. Temporary vision impairment is possible.
- **Ingestion:** Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea. Aspiration into the lungs can cause fatal chemical pneumonitis.

### **4.3 Indication of any immediate medical attention and special treatment needed**

No information available

## 5. FIRE-FIGHTING MEASURES

### **5.1 Extinguishing media**

**Suitable extinguishing media:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>).

**Unsuitable extinguishing media:** Water jet.

### **5.2 Special hazards arising from the substance or mixture**

**Specific hazards:** Product is flammable. Vapor is flammable and heavier than air. Vapor may travel across the ground and reach remote ignition sources, causing a flashback fire danger.

**Hazardous combustion products:** Smoke, fume, incomplete combustion products, carbon monoxide, carbon dioxide.

### **5.3 Advice for fire-fighters**

**Protective equipment for fire-fighters:** Fire resistant protective clothing and in enclosed spaces, use of self-contained breathing apparatus (SCBA).

**Specific fire-fighting methods:** Use water spray to cool fire exposed surfaces and to protect personnel.

## 6. ACCIDENTAL RELEASE MEASURES

### **6.1 Personal precautions, protective equipment and emergency procedures**

#### **6.1.1 For non-emergency personnel**

**Removal of ignition sources, provision of sufficient ventilation, and control of dust:**

Eliminate possible ignition sources. Stop work that requires an open flame.

**Emergency procedures:** Avoid contact with spilled material. Keep unauthorized personnel away. Stay upwind.

## White Spirit Solvent

### ***6.1.2 For emergency responders***

Evacuate area. Prevent run-off from fire control. Avoid release to the environment. Use water spray to keep surfaces cool and to protect personnel.

### ***6.2 Environmental precautions***

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

**Large Spill:** Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

### ***6.3 Methods and material for containment and cleaning up***

**Land Spill:** Eliminate all ignition sources (smoke, flares, sparks) in the immediate area. Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Vapor-suppressing foam may be used to reduce vapor.

**Large Spill:** Water spray may reduce vapor, but may not prevent ignition in enclosed spaces. Recover by pumping or with suitable absorbent.

**Water Spill:** Stop leak if you can do so without risk. Eliminate sources of ignition. Warn or evacuate occupants in surrounding and downwind areas if required. Seek the advice of a specialist before using dispersants.

#### ***6.3.1 For containment***

**Land Spill:** Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

**Water Spill:** If the flash point exceeds the ambient temperature by 10 °C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. If the flash point does not exceed the ambient air temperature by at least 10 °C, use booms as a barrier to protect shorelines and allow material to evaporate.

#### ***6.3.2 For cleaning up***

Collect the spilled product with sand or any other inert material. Prevent entry into waterways, sewer, basements and confined spaces.

#### ***6.3.3 Other information***

Comply with local regulations.

### ***6.4 Reference to other sections***

Refer to Sections 7, 8 and 13.

## **7. HANDLING AND STORAGE**

### ***7.1 Precautions for safe handling***

#### ***7.1.1 Recommendations on safe handling:***

- Keep away from ignition sources.
- Avoid contact with skin.

## White Spirit Solvent

- Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation.
- Material can accumulate static charges, which may cause an electrical spark (ignition source). Take precautionary measures (e.g. earthing) against static discharges.
- Potentially toxic/irritating fumes/vapor may be evolved from heated or agitated material. Use only with adequate ventilation.
- Consult local applicable standards for guidance.

### ***7.1.2 Advice on general occupational hygiene***

Always observe good personal hygiene measures, such as washing after handling the product and before eating, drinking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

### **7.2 Conditions for safe storage, including any incompatibilities**

#### ***Technical measures and storage conditions:***

- Prevent any build up of static electricity.
- Store away from all sources of ignition and heat.

#### ***Packaging materials:***

- ***Containers/Packing:*** Tank cars, tank trucks, railcars, barges, drums.
- ***Suitable materials:*** Carbon steel, stainless steel, polyethylene, polypropylene, polyester, teflon.
- ***Unsuitable materials:*** Natural Rubber, butyl rubber, ethylene propylene diene monomer, polystyrene.

#### ***Requirements for storage rooms and vessels:***

- Container choice, e.g. storage vessel, may effect static accumulation and dissipation.
- Keep container closed when not in use.
- Handle containers with care.
- Open slowly in order to control possible pressure release.
- Store in a cool, well-ventilated area. Storage containers must be earthed and bonded to prevent accumulation of static charge.

***Storage class : 3***

### **7.3 Specific end use(s)**

Refer to the Exposure Scenarios attached to current Safety Data Sheet.

## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

### **8.1 Control parameters**

#### ***8.1.1 Occupational Exposure/Biological Limit Values***

- ***National Occupational exposure Limit Values:*** Not established for the substance "Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)".
- ***European Occupational exposure Limit Values:*** Not established for the substance "Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)".

## White Spirit Solvent

The exposure limit values for Stoddard Solvent, CAS Nr: 8052-41-3 are:

	<u>Limit Value -TWA- 8 hours</u>		<u>Limit Value - Short-term</u>	
	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm
Greece	575	100	720	125
ACGIH (USA)	290		580	

**Biological Limit Values:** Not established.

### 8.1.2 Information on currently recommended monitoring procedures

- National Institute of Occupational Safety and Health (NIOSH): Manual of Analytical Methods : NAPHTHAS, Method 1550.

### 8.1.3 Applicable occupational exposure limit values and/or biological limit values for air contaminants (if formed when using the substance/mixture as intended):

In instances where stable aerosol formation is expected, a value of 10 mg/m<sup>3</sup> will be used as an operational control limit for inhalation exposure. Workers are expected to have infrequent and short-term exposures; however, for calculation of the DNEL for REACH purposes it is assumed that workers have maximum repeated exposure for 8 hr/day for 5 days/week. Consumers in the general population are expected to have infrequent and short-term exposures. However, for calculation of DNELs for REACH, it is assumed that consumers have a maximal repeated dose for 24 hr/day for 7 days/week.

### 8.1.4 DNEL/PNEC values:

#### DNEL values

Exposure Route	Descriptor	Acute Systemic effects	Long-term Systemic effects	Justification
<b><u>WORKERS</u></b>				
Inhalation	DNEL	570 mg/m <sup>3</sup>	330 mg/m <sup>3</sup>	<u>Overall Acute Systemic Effects</u> Assessment factor = 1. <u>Overall Long-term Systemic Effects</u> Assessment factor = 6. NOAEC: 3950 mg/m <sup>3</sup> starting point
Dermal	DNEL	-	21 mg/kg bw/day	Assessment factor = 24.
<b><u>GENERAL POPULATION</u></b>				
Inhalation	DNEL	570 mg/m <sup>3</sup>	71mg/m <sup>3</sup>	<u>Overall Acute Systemic Effects</u> Assessment factor = 1. <u>Overall Long-term Systemic Effects</u> Assessment factor = 10. NOAEC: 3950 mg/m <sup>3</sup> starting point
Dermal	DNEL	-	12 mg/kg bw/day	Assessment factor = 40.
Oral	DNEL	-	21 mg/kg bw/day	Assessment factor = 40. NOAEL (rat,oral)= 818.2 mg/kg

## White Spirit Solvent

### PNEC VALUES

#### *Justification for (no) PNEC derivation*

No data available. Testing technically not feasible. The hydrocarbon block method is used for environmental risk assessment.

#### *8.1.5 Specific control banding recommendation (if control banding approach is used)*

Not applicable.

### 8.2 Exposure controls

#### *8.2.1 Appropriate engineering controls / Technical measures to prevent exposure:*

The level of protection and types of controls necessary vary depending upon the potential exposure conditions.

**Control measures to consider:** Adequate ventilation must be provided so that exposure limits are not exceeded. Use explosion-proof ventilation equipment.

#### *Organisational measures to prevent exposure:*

Before a worker is placed in a job with a potential for exposure to the product, a licensed health care professional should evaluate and document the worker's baseline health status.

#### *8.2.2 Individual protection measures, such as personal protection equipment*

##### *8.2.2.1 Eye / face protection:*



Wear safety goggles with side shields (EN166).

##### *8.2.2.2 Skin protection:*



#### Hand protection:

Chemical resistant gloves (for prolonged or repeated contact).

Gauntlet-style gloves (potential contact with forearms).

Materials: Nitrile, EN 420 and EN 374.

Body protection: Chemical / oil resistant clothing.

Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.

##### *8.2.2.3 Respiratory protection:*



Half-face filter respirator: Type A filter material.

EN 136, 140 and 405 (respirator masks), EN 149 and 143 (filter recommendations).

For high airborne concentrations: Approved supplied-air respirator, operated in positive pressure mode.

#### *8.2.3 Environmental exposure controls:*

- Prevent from entering sewers. Dispose of waste product and used containers according to local regulations.



## White Spirit Solvent

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1 Information on basic physical and chemical properties

a) Appearance	Clear colorless liquid at 20°C and 1 atm.
b) Odour	Pungent odour.
c) Odour threshold	N/A.
d) pH	N/A.
e) Melting point/freezing point	Pour point < -20°C (ASTM D97).
f) Initial boiling point and boiling range	135°C - 220°C (ASTM D86).
g) Flash point	> 30°C (ASTM D56 at 1 atm).
h) Evaporation rate	N/A
i) Flammability	Flammable substance (flash point between 23-60°C).
j) Upper/lower flammability or explosive limits	LEL and UEL reported by extrapolation as respectively 0.6 and 7.0 % v/v.
k) Vapour pressure	0.231 kPa at 20°C
l) Vapour density	N/A
m) Relative density	0.720 - 0.825 g/cm <sup>3</sup> at 15°C (ISO 12185)
n) Solubility(ies)	N/A.
o) Partition coefficient: n-octanol/ water	N/A.
p) Auto-ignition temperature	>200°C
q) Decomposition temperature	N/A
r) Viscosity	1.0 - 2.5 mm <sup>2</sup> /s at 20°C (ASTM D445)
s) Explosive properties	Not considered as explosive agent.
t) Oxidising properties	Not considered as oxidizing agent.

#### 9.2 Other information

Not available.

### 10. STABILITY AND REACTIVITY

#### 10.1 Reactivity

Risk of ignition.

#### 10.2 Chemical stability

Material is stable under normal conditions.

#### 10.3 Possibility of hazardous reactions

No data available.

#### 10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

#### 10.5 Incompatible materials

Strong oxidisers.

## White Spirit Solvent

### 10.6 Hazardous decomposition products

Material does not decompose at ambient temperature.

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### A) Acute toxicity:

##### Acute Oral Toxicity

**Method:** Equivalent or similar to OECD Guideline 401.  
**Species:** Rat.  
**Amount/concentration applied:** 0, 15000 mg/kg.  
**Test material:** Hydrocarbons, C9-C10, containing n-alkanes, isoalkanes, and cyclics, 2-25% aromatics.  
**Duration of treatment/exposure:** N/A  
**Results:** LD50 > 15000 mg/kg

##### Acute Inhalation Toxicity

**Method:** Equivalent or similar to OECD Guideline 403.  
**Species:** Rat.  
**Amount/concentration applied:** 13.1 mg/l (near saturation).  
**Test material:** Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%).  
**Duration of treatment/exposure:** 14 days.  
**Results:** LC50 > 13.1 mg/l

##### Acute Toxicity-Dermal

**Method:** Comparable to guidelines/standards OECD TG402.  
**Species:** Rat.  
**Amount/concentration applied:** 1, 2, or 4 ml/kg  
**Test material:** Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%).  
**Duration of treatment/exposure:** 24h.  
**Results:** LD50 >4ml/kg (~3400mg/kg bw)

Based on the available data, the substance does not meet the criteria for classification for acute toxicity according to the EU CLP Regulation (EC No. 1272/2008).

#### B) Skin corrosion/irritation:

**Method:** Equivalent or similar to OECD Guideline 404.  
**Species:** Rabbit .  
**Test material** C9-C14 aliphatic solvents (2-25% aromatics).  
**Results:** Erythema score:  
1.22 of max. 2 (Time point: 24, 48, and 72 hrs).  
Reversibility: 21 days.  
(Fully reversible in all but 2 animals).  
Edema score:  
1 of max. 1 (Time point: 24, 48, 72 hours) Reversibility:  
fully reversible within: 10 days.

Based on the available data, the substance is not classified as skin irritant according to EU CLP Regulation (EC No. 1272/2008).

## White Spirit Solvent

### C) Serious eye damage/irritation:

<b>Method:</b>	In vivo. Equivalent or similar to OECD Guideline 405
<b>Species:</b>	Rabbits.
<b>Test material</b>	C9-C14 aliphatic solvents (2-25% aromatics).
<b>Results:</b>	Conjunctivae score: (mean) 0.3 of max. 1 (Time point: 24, 48, 72 hours). fully reversible within: 48 hrs. Chemosis score: (mean) 0 of max. 0, (Time point: 24, 48, 72 hrs). Iris score: (mean) 0 of max. 0, (Time point: 24, 48, 72 hrs). Cornea opacity score: (mean) 0 of max. 0, (Time point: 24, 48, 72 hrs).

Based on the available data, the substance does not meet the criteria for classification as an eye irritant according to the EU CLP Regulation (EC No. 1272/2008).

### D) Respiratory or skin sensitisation:

<b>Method:</b>	In vivo. Equivalent or similar to OECD Guideline 406 (Skin Sensitisation).
<b>Species:</b>	Guinea pig.
<b>Amount/concentration applied:</b>	Intradermal induction: 0.1 % w/v in corn oil, Topical induction: 50.0 % w/v in corn oil, Topical challenge: 25.0 % w/v in corn oil.
<b>Results:</b>	Not sensitizing.

Based on the available data, the substance does not meet the criteria for classification as a skin sensitizer according to the EU CLP Regulation (EC No. 1272/2008).

### E) Germ cell mutagenicity (Genetic toxicity in vitro / in vivo):

<b>Method:</b>	In vitro. Equivalent or similar to OECD Guideline 471 (Bacterial Reverse Mutation Assay).
<b>Species:</b>	<i>S. typhimurium</i> , other.
<b>Test material:</b>	Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, aromatics (2-25%).
<b>Doses/concentrations:</b>	8-5000 µg/plate.
<b>Results:</b>	Not mutagenic.
<b>Method:</b>	In vitro. Equivalent or similar to OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
<b>Species:</b>	Human peripheral lymphocytes.
<b>Test material:</b>	Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, aromatics (2-25%).
<b>Doses/concentrations:</b>	1.2, 6.0, 30.0 µg/ml.
<b>Results:</b>	Non-clastogenic.
<b>Method:</b>	In vivo. Equivalent or similar to OECD Guideline 474. Micronucleus assay [chromosome aberration].
<b>Species:</b>	Mouse.
<b>Doses/concentrations:</b>	40 mg/kg intraperitoneal injection.
<b>Test material:</b>	Turbo Fuel A.
<b>Results:</b>	Negative.

## White Spirit Solvent

The available data do not support classification of the substance for genotoxic potential according to EU CLP Classification (EC no. 1272/2008).

### F) Carcinogenicity:

<b>Method:</b>	Equivalent or similar to OECD Guideline 453.
<b>Species:</b>	Rat.
<b>Doses/concentrations:</b>	0, 138, 550, 1100, or 2200 mg/m <sup>3</sup>
<b>Test material:</b>	Hydrocarbons, C10-C12, isoalkanes, <2% aromatics.
<b>Results:</b>	NOAEC: >=2200 mg/m <sup>3</sup> air (nominal) (female). NOAEC: 138 mg/m <sup>3</sup> air (nominal) (male).

The weight of evidence is derived from study records reported for the C9-C14 aliphatic, 2-25% aromatics and C9-C14 aliphatic, <2% aromatics. Based on data available, the product is not classified as carcinogen.

### G) Toxicity to reproduction:

#### *i) Fertility*

From summarised key studies:

- Read across: OECD TG413 -Stoddard Solvent IIC-No indication-NOAEC(fertility)  $\geq$  2200mg/m<sup>3</sup>
- Read across: OECD TG 413-Decalin-No indication- NOAEC(fertility)  $\geq$  400ppm.
- Read across: JP-8 fuel (C9-C16 aliphatics,25% aromatics) , OECD TG415-oral-NOAEL $\geq$  3000 mg/kg/day.
- Read across:JP-8 fuel (C9-C16 aliphatics,25% aromatics), OECD TG415-oral-NOAEL $\geq$  1500 mg/kg/day.

#### *ii) Developmental*

From summarized key studies:

- OECD TG414 - No treatment-related adverse effects to maternal and fetal development. NOAEC for maternal and developmental toxicity was > 300 ppm (highest dose tested).
- Read across: OECD TG414 - C9-C11 , normal, isoalkanes, cyclics; < 2% Aromatics NOAECs  $\geq$ 900 ppm
- Read across: OECD TG 414 - C9 aromatic naphtha. - Both maternal and fetal NOAECs ranged from 100 to 300 ppm (500 - 1500 mg/m<sup>3</sup>).
- Read across: OECD TG 414 -JP-8 fuel - NOAEL :1000 mg/kg/day.
- Read across: OECD TG 414 - C10-C12 Aromatic solvent - No adverse fetal effects. Maternal NOAEL: 150 mg/kg/day, developmental NOAEL >450 mg/kg/day.

Based on the above data, the product is not classified as toxic to reproduction.

In addition, an extended one-generation reproductive toxicity study (OECD 443) which is a standard REACH requirement, is lacking for substances in the C9-C14 carbon number range for hydrocarbon solvents. Testing strategy in the process of evaluation by ECHA.

H) STOT-single exposure: Classified for single exposure specific organ toxicity. Affected organs: Central nervous system. Route of exposure: Inhalation. May cause drowsiness or dizziness.

### I) STOT-repeated exposure:

Oral:

90d - NOAEL  $\geq$  1056 mg/kg (1.28 mL/kg) for rats (similar to OECD TG 408).

Dermal 90d - NOAEL  $\geq$  495 mg/kg bw (similar to OECD TG 411).

Inhalation 90d - NOAEL  $\geq$  690 ppm for rats (similar to OECD TG 413).

Classified as a repeated dose toxicant. Affected organs: Central nervous system. Route of exposure: Inhalation. May cause drowsiness or dizziness.

## White Spirit Solvent

**J) Aspiration hazard:** Classified for aspiration hazard Category 1 since it has a kinematic viscosity less than 20.5mm<sup>2</sup>/s at 40°C.

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

#### **12.1.1 Aquatic Toxicity**

**Short-term toxicity to fish:** 96-hour LL50 = 10-30 mg/L with rainbow trout, *Oncorhynchus mykiss*.

**Long-term toxicity to fish:** Estimated freshwater fish 28-day NOELR = 0.13 mg/l based on growth.

**Short-term toxicity to aquatic invertebrates:** 48-hour EL50 = 10 - 22 mg/L with *Daphnia magna*.

**Long-term toxicity to aquatic invertebrates:** 21-d NOELR (based on reproduction) = 0.28 mg/l. *Daphnia magna* exposed to hydrocarbons, C9 -C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%).

**Toxicity to aquatic algae and cyanobacteria:** Algal cultures exposed to water accommodated fractions (WAFs) of "Hydrocarbons, C9-C12, isoalkanes, cyclics, aromatics (2-25%)" in two separate studies. 72-hr EL50 = 4.1 and 4.6 - 10 mg/l, respectively. 72-hr NOELR (for growth rate) = 0.76 and 0.22 mg/l, respectively.

**Toxicity to aquatic plants other than algae:** No available data.

#### **Toxicity to microorganisms:**

Estimated protozoan, *Tetrahymena pyriformis*, 48-hr EL50 = 43.98 mg/l based on growth inhibition.

**Toxicity to other aquatic organisms:** No available data.

#### **12.1.2 Sediment Toxicity:**

Substance is a hydrocarbon UVCB. Standard tests for this endpoint are not appropriate for this complex substance.

#### **12.1.3 Terrestrial Toxicity:**

Substance is a hydrocarbon UVCB. Standard tests for this endpoint are not appropriate for this complex substance.

**Toxicity to birds:** In accordance with Column 2 of REACH Annex X, studies on long-term or reproductive toxicity to bird studies do not need to be conducted due to the existence of a large mammalian dataset demonstrating low toxicity to higher organisms.

**Conclusion:** The substance 'Hydrocarbons,C9-C12,n-alkanes,isoalkanes,cyclics aromatics (2-25%)' is classified as Aquatic Chronic 2 under EU CLP Regulation (EU No. 1272/2008).

### 12.2 Persistence and degradability

#### **12.2.1 Persistence Assessment**

The substance is readily biodegradable. It is not expected to meet the Persistent (P) or very Persistent (vP) criteria.

## White Spirit Solvent

### 12.2.2 Stability

#### Hydrolysis:

The chemical constituents that comprise hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%), consist entirely of carbon and hydrogen and do not contain hydrolysable groups. As such, they have a very low potential to hydrolyze.

Phototransformation in water and soil: This substance does not have the potential to undergo photolysis in water and soil.

### 12.2.3 Biodegradation

Biodegradation in water: Readily biodegradable.

Biodegradation in water and sediment: In accordance with REACH Annex IX column 2 exemptions, the simulation testing in water and sediment does not need to be conducted as this substance is readily biodegradable.

Biodegradation in soil: In accordance with REACH Annex IX column 2 exemptions, the simulation testing in soil does not need to be conducted as this substance is readily biodegradable.

### 12.3 Bioaccumulative potential

Substance is a hydrocarbon UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance.

### 12.4 Mobility in soil

Product evaporates readily from surface soil and water. Product can penetrate soil until reaching ground water, where the most soluble components will spread. Degradation occurs extremely slowly under anaerobic conditions.

### 12.5 Results of PBT and vPvB assessment

Does not fulfill the PBT/vPvB criteria.

### 12.6 Other adverse effects

No data available.

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### 13.1.1 Product / Packaging disposal:

Disposal recommendations based on material as supplied.

- Disposal must be in accordance with applicable regulations and material characteristics at time of disposal. Product is suitable for burning in an enclosed controlled burner for fuel value or incineration at very high temperatures to prevent formation of undesirable combustion products.

- **Empty Container Warning (where applicable):**

Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean

## White Spirit Solvent

containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through a licensed contractor and in accordance with the local regulations.

### **13.1.2 Waste treatment - relevant information:**

Collect for recovery or combustion in specific installation.

### **13.1.3 Sewage disposal - relevant information:**

Prevent from entering sewers.

European Waste Catalogue Code (EWC)-Decisions 2000/532/EC, 2001/118/EC: 07 01 04\* "other organic solvents, washing liquids and mother liquors".

### **13.1.4 Other disposal recommendations:** Refer to attached Exposure Scenarios.

### **13.2 Additional information**

Not available.

## 14. TRANSPORT INFORMATION

**14.1 UN Number :** ADR, ADN, IMDG, IATA: UN 1300.

### **14.2 UN Proper Shipping Name:**

ADR, AND(R), IMDG, IATA (ICAO): TURPENTINE SUBSTITUTE.

### **14.3 Transport hazard class:**

• ADR/ADN



• Class 3  
• Label 3

• IMDG Code



• Class 3  
• Label 3

**14.4 PACKING Group :** II

**14.5 Environmental hazards:** Product contains environmentally hazardous substances: P



## White Spirit Solvent

### 14.6 Special precautions for user:

#### **ADR/RID:**

Classification Code: F1, Packaging Group: II, Packing Instructions: P001, IBC02, R001, Mixed Packing Provisions: MP19, Portable Tanks & Bank Containers: T4, TP1, Limited and Excepted Quantities: 1L, E2 ADR Tank Code: LGBF, Vehicle for tank carriage: FL, Tunnel restriction code: 2 (D/E), Special Provisions for Carriage: Operation: S2, S20, Hazard identification no.: 33.

#### **ADN:**

Equipment required: PP, EX, A, Ventilation: VE01.

#### **IMDG:**

Limited and Excepted Quantities: 1L, E2, Packing Instructions: P001, LP01, IBC Instructions: IBC02, Portable Tanks & Bank Containers: T4, TP1, EmS: F-E, S-D, Stowage and Segregation: Category B, Properties and Observations: Immiscible with water.

#### **IATA (ICAO):**

Labels Required: FLAMMABLE LIQUID, "Passenger Aircraft" Quantities: IATA LTD QTY Pkg Inst: Y341, IATA LTD QTY Max Qty per Pkg: 1L, IATA Pkg Inst: 353, UPS Max Capacity per inner receptacle: 1 L, UPS Max Net Qty per Pkg: 5L, Cargo Air Packing Inst: 364, Cargo Air Max: 30 L.

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

Not applicable.

## 15. REGULATORY INFORMATION

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### **National Regulations**

- Presidential Decree 90/1999 (Official Gazette 94A/99), "Establishment of limit exposure values of workers in chemical agents at work in compliance with the Commission Directives 91/322/EEC and 96/94/EC.

#### **EU Regulations**

- Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC (SEVESO III).
- Directive 2008/50/EC of the European Parliament and of the Council of May 21<sup>st</sup> 2008 on ambient air quality and cleaner air for Europe.

### 15.2 Chemical safety assessment

A Chemical Safety Assessment (CSA) has been carried out.

## 16. OTHER INFORMATION

### A) Indication of changes

Sections 1,2,3,4,5,6,7,8,10,11,12,13,14,16 and the Exposure Scenarios' Annex, have been revised according to REACH Regulation Annex II.

### B) Abbreviations and acronyms

<b>ADR</b>	European Agreement concerning the International Carriage of Dangerous Goods by Road
<b>AF</b>	Assessment Factor



## White Spirit Solvent

<b>CAS</b>	Chemical Abstracts Service
<b>CNS</b>	Central Nervous System
<b>CLP</b>	Classification, Labelling and Packaging
<b>DNEL</b>	Derived No Effect Level
<b>DMEL</b>	Derived Minimal Effect Level
<b>ECHA</b>	European Chemicals Agency
<b>EC number</b>	European Catalogue number
<b>EL50</b>	Effect Loading for the 50%
<b>EINECS</b>	European Inventory of Existing Commercial Chemical Substances
<b>ES</b>	Exposure Scenario
<b>GHS</b>	Globally Harmonized System of Classification and Labelling of Chemicals
<b>IATA</b>	International Air Transport Association
<b>ICAO</b>	International Civil Aviation Organization
<b>IMDG</b>	International Maritime Code for Dangerous Goods
<b>LC50</b>	Lethal Concentration for the 50%
<b>LD50</b>	Lethal Dose for the 50%
<b>LL50</b>	Lethal Loading for the 50%
<b>NOAEC</b>	No Adverse Effect Concentration
<b>NOAEL</b>	No Observed Adverse Effect Level
<b>NOEL</b>	No Observed Effect Level
<b>NOELR</b>	No Observed Effect Loading Rate
<b>OECD</b>	Organisation for Economic Co-Operation and Development
<b>PBT</b>	Persistent, Bioaccumulative and Toxic
<b>PNEC</b>	Predicted No Effect Concentration
<b>RID</b>	Regulations Concerning the International Transport of Dangerous Goods by Rail
<b>STP</b>	Sewage Treatment Plant
<b>TWA</b>	Time-Weighted-Average
<b>UVCB</b>	substance of unknown or variable composition, complex reaction products or biological materials
<b>vPvB</b>	Very Persistent and Very Bioaccumulative
<b>Flam. Liq. 3</b>	Flammable Liquids-Hazard Category 3
<b>Asp. Tox. 1</b>	Aspiration hazard-Hazard category 1
<b>STOT SE 3</b>	Specific Target Organ Toxicity-Single Exposure, Hazard Category 3
<b>STOT RE 1</b>	Specific Target Organ Toxicity-Repeated Exposure-Hazard Category 1
<b>Aquatic Chronic 2</b>	Hazardous for the aquatic environment-long term aquatic hazard-Hazard category 2

### C) Key literature references and sources of data

1. Hydrocarbon Solvents REACH Consortium  
<https://www.reachcentrum.eu/consortium/hydrocarbon-solvents-reach-consortium-122.html>
2. UN recommendations on the transport of dangerous goods-Model Regulations- Part 3
3. OSHA, Occupational Safety & Health Administration, <http://www.osha.gov>

### D) Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

According to CLP criteria.

Flam. Liq. 3	H226
Asp. Tox. 1	H304
STOT SE 3	H336 Affected organs: CNS. Route: Inhalation.
STOT RE 1	H372 Affected organs: CNS. Route: Inhalation.
Aquatic Chronic 2	H411

## White Spirit Solvent

### E) Relevant H-statements (number and full text)

- H226 Flammable liquid and vapour.
- H304 May be fatal if swallowed and enters airways.
- H336 May cause drowsiness or dizziness.
- H372 Causes damage to central nervous system through prolonged or repeated inhalation.
- H411 Toxic to aquatic life with long lasting effects.
- EUH066 Repeated exposure may cause skin dryness or cracking.

### F) Training advice

The information of the present document may be used for training purposes.

### G) Further information

*DISCLAIMER OF LIABILITY* The information provided only concerns the specific product and may not apply for the same material if used in combination with any other material(s) or in any process. This information is accurate and reliable according to data which Hellenic Petroleum SA has available on the above date and is given in good faith but without any warranty. The present e-SDS is supplied to customers, for them to consider and judge that the information is appropriate and complete for their particular use of the product. It is their own obligation to pass on relevant exposure scenarios and to use the relevant information to compile their own e-SDSs.

## White Spirit Solvent

### EXPOSURE SCENARIO 1 of 16 - Manufacture of substance - Industrial

#### Worker in Industrial Settings-White spirit solvent

##### SECTION 1: EXPOSURE SCENARIO TITLE

Title	Manufacture of substance.
Use Descriptors	
<b><i>Sector of use category (SU): Main User Groups</i></b>	
SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
<b><i>Process category (PROC)</i></b>	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4	Chemical production where opportunity for exposure arises.
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC15	Use as laboratory reagent.
<b><i>Environmental Release Category (ERC)</i></b>	
ERC1	Manufacture of the substance.
ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article).
Specific Environmental Release Category	ESVOC 1.1v1
Processes, tasks, activities covered	Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

##### SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES

###### ***Section 2.1: Control of worker exposure***

<b><i>Product characteristics</i></b>	
<i>Physical form of product</i>	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
<i>Concentration of substance in product</i>	Up to 100 % (unless stated).
<i>Amounts used</i>	No limit.
<i>Frequency and duration of use</i>	Covers daily exposures up to 8 hours (unless stated) [G2].
<i>Other Operational Conditions affecting worker exposure</i>	Assumes a good basic standard of occupational hygiene is implemented [G1].

## White Spirit Solvent

	Assumes use at not more than 20°C above ambient temperature [G15].
Contributing Scenarios	Risk Management Measures
PROC1 General exposures (closed systems) [CS15].	No other specific measures identified [EI20].
PROC2 General exposures (closed systems) [CS15].	No other specific measures identified [EI20].
PROC3 General exposures (closed systems) [CS15].	No other specific measures identified [EI20].
PROC4 General exposures (open systems) [CS16].	No other specific measures identified [EI20].
PROC8b Process sampling [CS2].	No other specific measures identified [EI20].
PROC8b Bulk transfers [CS14]. (open systems) [CS108].	No other specific measures identified [EI20].
PROC8b Bulk transfers [CS14]. (closed systems) [CS107].	No other specific measures identified [EI20].
PROC15 Laboratory activities [CS36].	No other specific measures identified [EI20].
PROC8a Equipment cleaning and maintenance [CS39].	No other specific measures identified [EI20].
PROC1 Material storage [CS67].	No other specific measures identified [EI20].
PROC2 Material storage [CS67].	No other specific measures identified [EI20].
<b><u>Section 2.2: Control of environmental exposure</u></b>	
<b><i>Product characteristics</i></b>	Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].
<b><i>Amounts used</i></b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.7E+4
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	1.7E+4
Maximum daily site tonnage (kg/day):	5.6E+4
<b><i>Frequency and duration of use</i></b>	
[FD2] Continuous release.	
Emission Days (days/year):	300
<b><i>Environmental factors not influenced by risk management</i></b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100

## White Spirit Solvent

<i>Other Operational Conditions of use affecting environmental exposure</i>	
Release fraction to air from process (initial release prior to RMM):	1.0E-2
Release fraction to wastewater from process (initial release prior to RMM):	3.0E-5
Release fraction to soil from process (initial release prior to RMM):	0.0001
<i>Technical conditions and measures at process level (source) to prevent release</i>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<i>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</i>	Risk from environmental exposure is driven by Freshwater Sediment [TCR1b]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%):	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency $\geq$ (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency $\geq$ (%):	0
<i>Organizational measures to prevent/limit release from site</i>	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<i>Conditions and measures related to municipal sewage treatment plant</i>	
Not applicable as there is no release to wastewater [STP1].	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/d):	3.2E+6
Assumed domestic sewage treatment plant flow (m <sup>3</sup> /d):	10000
<i>Conditions and measures related to external treatment of waste for disposal</i>	During manufacturing no waste of the substance is generated [ETW4].
<i>Conditions and measures related to external recovery of waste</i>	During manufacturing, no waste of the substance is generated [ERW2].
<b>SECTION 3: EXPOSURE ESTIMATION</b>	
<b><u>3.1. Health</u></b>	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].	
<b><u>3.2. Environment</u></b>	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrорisk model [EE2].	

**SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**

**4.1. Health**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

**4.2. Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2].

Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].

Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.

## White Spirit Solvent

### EXPOSURE SCENARIO 2 of 16 - Distribution of Substance - Industrial

<b>Worker in Industrial Settings-White spirit solvent</b>	
<b>SECTION 1: EXPOSURE SCENARIO TITLE</b>	
Title	Distribution of substance.
Use Descriptors	
<b><u>Sector of use category (SU): Main User Groups</u></b>	
SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
<b><u>Process category (PROC)</u></b>	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4	Chemical production where opportunity for exposure arises.
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC15	Use as laboratory reagent.
<b><u>Environmental Release Category (ERC)</u></b>	
ERC1	Manufacture of the substance.
ERC2	Formulation into mixture.
ERC3	Formulation into solid matrix.
ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article).
ERC5	Use at industrial site leading to inclusion into/onto article.
ERC6a	Use of intermediate.
ERC7	Use of functional fluid at industrial site.
Specific Environmental Release Category	ESVOC 1.1b.v1
Processes, tasks, activities covered	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, maintenance and associated laboratory activities.
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<b><u>Section 2.1: Control of worker exposure</u></b>	
Product characteristics	
Physical form of product	Liquid, vapour pressure <0.5 kPa at

## White Spirit Solvent

	STP[OC3].
<i>Concentration of substance in product</i>	Up to 100 % (unless stated).
<i>Amounts used</i>	No limit.
<i>Frequency and duration of use</i>	Covers daily exposures up to 8 hours (unless stated) [G2].
<i>Other Operational Conditions affecting worker exposure</i>	Assumes a good basic standard of occupational hygiene is implemented [G1]. Assumes use at not more than 20°C above ambient temperature [G15].
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
PROC1 General exposures (closed systems) [CS15].	No other specific measures identified [E120].
PROC2 General exposures (closed systems) [CS15].	No other specific measures identified [E120].
PROC3 General exposures (closed systems) [CS15].	No other specific measures identified [E120].
PROC4 General exposures (open systems) [CS16].	No other specific measures identified [E120].
PROC3 Process sampling [CS2]	No other specific measures identified [E120].
PROC15 Laboratory activities [CS36].	No other specific measures identified [E120].
PROC8b Bulk transfers [CS14]. (open systems) [CS108].	No other specific measures identified [E120].
PROC8b Bulk transfers [CS14]. (closed systems) [CS107].	No other specific measures identified [E120].
PROC9 Drum and small package filling [CS6].	No other specific measures identified [E120].
PROC8a Equipment cleaning and maintenance [CS39].	No other specific measures identified [E120].
PROC1 Material storage [CS67]	No other specific measures identified [E120].
PROC2 Material storage [CS67]	No other specific measures identified [E120].
<b><u>Section 2.2: Control of environmental exposure</u></b>	
<i>Product characteristics</i>	Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].
<i>Amounts used</i>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.7E+3



## White Spirit Solvent

Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	3.4E+0
Maximum daily site tonnage (kg/day):	1.7E+2
<b>Frequency and duration of use</b>	
[FD2] Continuous release.	
Emission Days (days/year):	20
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions of use affecting environmental exposure</b>	
Release fraction to air from process (initial release prior to RMM):	1.0E-3
Release fraction to wastewater from process (initial release prior to RMM):	1.0E-6
Release fraction to soil from process (initial release prior to RMM):	0.00001
<b>Technical conditions and measures at process level (source) to prevent release</b>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency $\geq$ (%):	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of $\geq$ (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):	0
<b>Organizational measures to prevent/limit release from site</b>	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<b>Conditions and measures related to municipal sewage treatment plant</b>	
Not applicable as there is no release to wastewater [STP1].	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/d):	1.7E+5
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{d}$ ):	2000
<b>Conditions and measures related to external treatment of waste for disposal</b>	External treatment and disposal of waste should comply with applicable local and/or

## White Spirit Solvent

	national regulations [ETW3].
<i>Conditions and measures related to external recovery of waste</i>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
<b>SECTION 3: EXPOSURE ESTIMATION</b>	
<b><u>3.1. Health</u></b>	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].	
<b><u>3.2. Environment</u></b>	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].	
<b>SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>	
<b><u>4.1. Health</u></b>	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].	
<b><u>4.2. Environment</u></b>	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.	

## White Spirit Solvent

### EXPOSURE SCENARIO 3 of 16 - Formulation & (re)packing of substances and mixtures - Industrial

<b>Worker in Industrial Settings-White spirit solvent</b>	
<b>SECTION 1: EXPOSURE SCENARIO TITLE</b>	
Title	Formulation and (re)packing of substances and mixtures
Use Descriptors	
<b><u>Sector of use category (SU): Main User Groups</u></b>	
SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
<b><u>Sector of use category (SU): Supplementary descriptor: Sectors of end-use</u></b>	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4	Chemical production where opportunity for exposure arises.
PROC5	Mixing or blending in batch processes.
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC14	Tabletting, compression, extrusion, pelletisation, granulation.
PROC15	Use as laboratory reagent.
<b><u>Environmental Release Category (ERC)</u></b>	
ERC2	Formulation into mixture.
Specific Environmental Release Category	ESVOC 2.2v1
Processes, tasks, activities covered	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<b><u>Section 2.1: Control of worker exposure</u></b>	
<i>Product characteristics</i>	
<i>Physical form of product</i>	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
<i>Concentration of substance in product</i>	Up to 100 % (unless stated).
<i>Amounts used</i>	No limit.
<i>Frequency and duration of use</i>	Covers daily exposures up to 8 hours (unless stated) [G2].
<i>Other Operational Conditions affecting</i>	Assumes a good basic standard of

## White Spirit Solvent

<i>worker exposure</i>	occupational hygiene is implemented [G1]. Assumes use at not more than 20°C above ambient temperature [G15].
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
PROC1 General exposures (closed systems) [CS15].	No other specific measures identified [E120].
PROC2 General exposures (closed systems) [CS15].	No other specific measures identified [E120].
PROC3 General exposures (closed systems) [CS15].	No other specific measures identified [E120].
PROC4 General exposures (open systems) [CS16].	No other specific measures identified [E120].
PROC3 Batch processes at elevated temperatures [CS136]. Operation is carried out at elevated temperature (> 20°C above ambient temperature) [OC7].	No other specific measures identified [E120].
PROC3 Process sampling [CS2]	No other specific measures identified [E120].
PROC15 Laboratory activities [CS36].	No other specific measures identified [E120].
PROC8b Bulk transfers [CS14].	No other specific measures identified [E120].
PROC5 Mixing operations (open systems) [CS30]	No other specific measures identified. [E120]
PROC8a Transfer from/pouring from containers [CS22]. Manual [CS34].	No other specific measures identified [E120].
PROC8b Drum/batch transfers [CS8]	No other specific measures identified [E120].
PROC14 Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100].	No other specific measures identified [E120].
PROC9 Drum and small package filling [CS6].	No other specific measures identified [E120].
PROC8a Equipment cleaning and maintenance [CS39]	No other specific measures identified [E120].
PROC1 Material storage [CS67]	No other specific measures identified [E120].
PROC2 Material storage [CS67]	No other specific measures identified [E120].
<b><u>Section 2.2: Control of environmental exposure</u></b>	
<b>Product characteristics</b>	Substance is complex UVCB [PrC3].
	Predominantly hydrophobic [PrC4a].

## White Spirit Solvent

<b>Amounts used</b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	2.4E+3
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	2.4E+3
Maximum daily site tonnage (kg/day):	7.8E+3
<b>Frequency and duration of use</b>	
[FD2] Continuous release.	
Emission Days (days/year):	300
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions of use affecting environmental exposure</b>	
Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements):	1.0E-2
Release fraction to wastewater from process (initial release prior to RMM):	2.0E-5
Release fraction to soil from process (initial release prior to RMM):	0.0001
<b>Technical conditions and measures at process level (source) to prevent release</b>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	Risk from environmental exposure is driven by freshwater sediment [TCR1b]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%):	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency $\geq$ (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of $\geq$ (%):	0
<b>Organizational measures to prevent/limit release from site</b>	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<b>Conditions and measures related to municipal sewage treatment plant</b>	
Not applicable as there is no release to wastewater [STP1]	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{Safe}$ ) based on	

## White Spirit Solvent

release following total wastewater treatment removal (kg/d):	9.5E + 5
Assumed domestic sewage treatment plant flow (m <sup>3</sup> /d):	2000
<i>Conditions and measures related to external treatment of waste for disposal</i>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<i>Conditions and measures related to external recovery of waste</i>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

### SECTION 3: EXPOSURE ESTIMATION

#### 3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

### SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

#### 4.1. Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

#### 4.2. Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2].

Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].

Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.

## White Spirit Solvent

### EXPOSURE SCENARIO 4 of 16 - Uses in coatings - Industrial

<b>Worker in Industrial Settings- White spirit solvent</b>	
<b>SECTION 1: EXPOSURE SCENARIO TITLE</b>	
Title	Uses in coatings.
Use Descriptors	
<b><u>Sector of use category (SU): Main User Groups</u></b>	
SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
<b><u>Process category (PROC)</u></b>	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4	Chemical production where opportunity for exposure arises.
PROC5	Mixing or blending in batch processes.
PROC7	Industrial spraying
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC10	Roller application or brushing
PROC13	Treatment of articles by dipping and pouring
PROC14	Tabletting, compression, extrusion, pelletisation, granulation.
PROC15	Use as laboratory reagent
<b><u>Environmental Release Category (ERC)</u></b>	
ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article).
Specific Environmental Release Category	ESVOC 4.3a.v1
Processes, tasks, activities covered	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidized bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<b><u>Section 2.1: Control of worker exposure</u></b>	
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at

## White Spirit Solvent

	STP [OC3].
<i>Concentration of substance in product</i>	Up to 100 % (unless stated).
<i>Amounts used</i>	No limit.
<i>Frequency and duration of use</i>	Covers daily exposures up to 8 hours (unless stated) [G2].
<i>Other Operational Conditions affecting worker exposure</i>	Assumes a good basic standard of occupational hygiene is implemented [G1].
	Assumes use at not more than 20°C above ambient temperature [G15].
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
PROC1 General exposures (closed systems) [CS15].	No other specific measures identified [E120].
PROC2 General exposures (closed systems) [CS15] with sample collection [CS56]. Use in contained systems [CS38].	No other specific measures identified [E120].
PROC2 Film formation - force drying, stoving and other technologies [CS99]. Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7].	No other specific measures identified [E120].
PROC3 General exposures (closed systems) [CS15]. Mixing operations (closed systems) [CS29].	No other specific measures identified [E120].
PROC4 Film formation - air drying [CS95].	No other specific measures identified [E120].
PROC5 Mixing operations (open systems) [CS30]. Preparation of material for application [CS96].	No other specific measures identified [E120].
PROC7 Spraying (automatic/robotic) [CS97].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].
PROC7 Manual [CS34]. Spraying [CS10]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].
PROC8a Material transfers [CS3].	No other specific measures identified [E120].
PROC8b Material transfers [CS3].	No other specific measures identified [E120].
PROC10 Roller, spreader, flow application [CS98].	No other specific measures identified [E120].
PROC13 Dipping, immersion and pouring [CS4].	No other specific measures identified [E120].
PROC15 Laboratory activities [CS36].	No other specific measures identified [E120].
PROC9	No other specific measures identified



## White Spirit Solvent

Material transfers [CS3]. Drum/batch transfers [CS8]. Transfer from/pouring from containers [CS22].	[E120].
PROC14 Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100].	No other specific measures identified [E120].
PROC8a Equipment cleaning and maintenance [CS39].	No other specific measures identified [E120].
PROC1 Material storage [CS67]	No other specific measures identified [E120].
<b><i>Section 2.2: Control of environmental exposure</i></b>	
<b><i>Product characteristics</i></b>	Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].
<b><i>Amounts used</i></b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	4.3E+3
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	4.3E+3
Maximum daily site tonnage (kg/day):	4.3E+4
<b><i>Frequency and duration of use</i></b>	
[FD2] Continuous release.	
Emission Days (days/year):	100
<b><i>Environmental factors not influenced by risk management</i></b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b><i>Other Operational Conditions of use affecting environmental exposure</i></b>	
Release fraction to air from process (initial release prior to RMM):	0.98
Release fraction to wastewater from process (initial release prior to RMM):	7.0E-5
Release fraction to soil from process (initial release prior to RMM):	0
<b><i>Technical conditions and measures at process level (source) to prevent release</i></b>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<b><i>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</i></b>	Risk from environmental exposure is driven by freshwater sediment [TCR1b]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR10].
Treat air emission to provide a typical removal efficiency of (%):	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ (%):	59.8
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal	0

## White Spirit Solvent

efficiency of $\geq$ (%):	
<i>Organizational measures to prevent/limit release from site</i>	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<i>Conditions and measures related to municipal sewage treatment plant</i>	
Not applicable as there is no release to wastewater [STP1].	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{\text{safe}}$ ) based on release following total wastewater treatment removal (kg/d):	2.7E+5
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{d}$ ):	2000
<i>Conditions and measures related to external treatment of waste for disposal</i>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<i>Conditions and measures related to external recovery of waste</i>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
<b>SECTION 3: EXPOSURE ESTIMATION</b>	
<b><u>3.1. Health</u></b>	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].	
<b><u>3.2. Environment</u></b>	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].	
<b>SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>	
<b><u>4.1. Health</u></b>	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].	
<b><u>4.2. Environment</u></b>	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.	

## White Spirit Solvent

### EXPOSURE SCENARIO 5 of 16 - Use in cleaning agents - Industrial

#### Worker in Industrial Settings-White spirit solvent

##### SECTION 1: EXPOSURE SCENARIO TITLE

Title	Use in cleaning agents.
Use Descriptors	
<b><u>Sector of use category (SU): Main User Groups</u></b>	
SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
<b><u>Process category (PROC)</u></b>	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4	Chemical production where opportunity for exposure arises.
PROC7	Industrial spraying.
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC10	Roller application or brushing.
PROC13	Treatment of articles by dipping and pouring.
<b><u>Environmental Release Category (ERC)</u></b>	
ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article).
Specific Environmental Release Category	ESVOC4.4a.v1
Processes, tasks, activities covered	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

##### SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES

###### **Section 2.1: Control of worker exposure**

<b><i>Product characteristics</i></b>	
<i>Physical form of product</i>	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
<i>Concentration of substance in product</i>	Up to 100 % (unless stated).
<i>Amounts used</i>	No limit.
<i>Frequency and duration of use</i>	Covers daily exposures up to 8 hours (unless stated) [G2].
<i>Other Operational Conditions affecting</i>	Assumes a good basic standard of

## White Spirit Solvent

<i>worker exposure</i>	occupational hygiene is implemented [G1]. Assumes use at not more than 20°C above ambient temperature [G15].
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
<b><u>Section 2.2: Control of environmental exposure</u></b>	
PROC8a Bulk transfers [CS14]	No other specific measures identified [E120].
PROC2 Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38].	No other specific measures identified [E120].
PROC3 Automated process with (semi) closed systems. [CS93]. Drum/batch transfers [CS8].	No other specific measures identified [E120].
PROC2 Application of cleaning products in closed systems [CS101].	No other specific measures identified [E120].
PROC8b Filling / preparation of equipment from drums or containers [CS45].	No other specific measures identified [E120].
PROC4 Use in contained batch processes [CS37].	No other specific measures identified [E120].
PROC13 Degreasing small objects in cleaning station [CS41].	No other specific measures identified [E120].
PROC10 Cleaning with low-pressure washers [CS42].	No other specific measures identified [E120].
PROC7 Cleaning with high pressure washers [CS44].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40]. OR Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
PROC10 Manual [CS34] Surfaces [CS48] Cleaning [CS47]	No other specific measures identified [E120].
PROC1 Material storage [CS67]	No other specific measures identified [E120].
<b><i>Product characteristics</i></b>	Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].
<b><i>Amounts used</i></b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.4E+3
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	1.0E+2
Maximum daily site tonnage (kg/day):	5.0E+3

## White Spirit Solvent

<b><i>Frequency and duration of use</i></b>	
[FD2] Continuous release.	
Emission Days (days/year):	20
<b><i>Environmental factors not influenced by risk management</i></b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b><i>Other Operational Conditions of use affecting environmental exposure</i></b>	
Release fraction to air from process (initial release prior to RMM):	1.0
Release fraction to wastewater from process (initial release prior to RMM):	3.0E-7
Release fraction to soil from process (initial release prior to RMM):	0
<b><i>Technical conditions and measures at process level (source) to prevent release</i></b>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<b><i>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</i></b>	Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%):	70
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency $\geq$ (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of $\geq$ (%):	0
<b><i>Organizational measures to prevent/limit release from site</i></b>	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<b><i>Conditions and measures related to municipal sewage treatment plant</i></b>	
Not applicable as there is no release to wastewater [STP1].	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/d):	4.6E+6
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{d}$ ):	2000
<b><i>Conditions and measures related to external</i></b>	External treatment and disposal of waste

## White Spirit Solvent

<i>treatment of waste for disposal</i>	should comply with applicable local and/or national regulations [ETW3].
<i>Conditions and measures related to external recovery of waste</i>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

### SECTION 3: EXPOSURE ESTIMATION

#### 3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorkisk model [EE2].

### SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

#### 4.1. Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

#### 4.2. Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2].

Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].

Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.

## White Spirit Solvent

### EXPOSURE SCENARIO 6 of 16 - Lubricants - Industrial

<b>Worker in Industrial Settings-White spirit solvent</b>	
<b>SECTION 1: EXPOSURE SCENARIO TITLE</b>	
Title	Lubricants.
Use Descriptors	
<b><u>Sector of use category (SU): Main User Groups</u></b>	
SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
<b><u>Process category (PROC)</u></b>	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4	Chemical production where opportunity for exposure arises.
PROC7	Industrial spraying.
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC10	Roller application or brushing .
PROC13	Treatment of articles by dipping and pouring .
PROC17	Lubrication at high energy conditions in metal working operations.
PROC18	General greasing /lubrication at high kinetic energy conditions.
<b><u>Environmental Release Category (ERC)</u></b>	
ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article).
ERC7	Use of functional fluid at industrial site.
Specific Environmental Release Category	ESVOC4.6a.v1
Processes, tasks, activities covered	Covers the use of formulated lubricants in closed and open systems including transfers operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<b><u>Section 2.1: Control of worker exposure</u></b>	
<b><u>Product characteristics</u></b>	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
Concentration of substance in product	Up to 100 % (unless stated).

## White Spirit Solvent

<i>Amounts used</i>	No limit.
<i>Frequency and duration of use</i>	Covers daily exposures up to 8 hours (unless stated) [G2].
<i>Other Operational Conditions affecting worker exposure</i>	Assumes a good basic standard of occupational hygiene is implemented [G1]. Assumes use at not more than 20°C above ambient temperature [G15].
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
PROC1 General exposures (closed systems) [CS15].	No other specific measures identified [E120].
PROC2 General exposures (closed systems) [CS15].	No other specific measures identified [E120].
PROC3 General exposures (closed systems) [CS15].	No other specific measures identified [E120].
PROC4 General exposures (open systems) [CS16].	No other specific measures identified [E120].
PROC8b Bulk transfers[CS14]	No other specific measures identified [E120].
PROC8a Filling / preparation of equipment from drums or containers [CS45].	No other specific measures identified [E120].
PROC8b Filling / preparation of equipment from drums or containers [CS45].	No other specific measures identified [E120].
PROC9 Initial factory fill of equipment [CS75].	No other specific measures identified [E120].
PROC17 Operation and lubrication of high energy open equipment [CS17].	No other specific measures identified [E120].
PROC18 Operation and lubrication of high energy open equipment [CS17].	No other specific measures identified [E120].
PROC10 Manual applications e.g. brushing, rolling [CS13].	No other specific measures identified [E120].
PROC7 Spraying [CS10].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].
PROC8b Maintenance (of larger plant items) and machine set up [CS77].	No other specific measures identified [E120].
PROC8b Maintenance (of larger plant items) and machine set up [CS77]. Operation is carried out at elevated temperature (> 20°C above ambient temperature) [OC7].	No other specific measures identified [E120].
PROC8a Maintenance of small items [CS18]	No other specific measures identified [E120].



## White Spirit Solvent

PROC9 Remanufacture of reject articles [CS19]	No other specific measures identified [E120].
PROC1 Material storage [CS67]	Store substance within a closed system [E84].
PROC2 Material storage [CS67]	Store substance within a closed system [E84].
<b><u>Section 2.2: Control of environmental exposure</u></b>	
<b><i>Product characteristics</i></b>	Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].
<b><i>Amounts used</i></b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.0E+1
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	1.0E+1
Maximum daily site tonnage (kg/day):	5.0E+2
<b><i>Frequency and duration of use</i></b>	
[FD2] Continuous release.	
Emission Days (days/year):	20
<b><i>Environmental factors not influenced by risk management</i></b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b><i>Other Operational Conditions of use affecting environmental exposure</i></b>	
Release fraction to air from process (initial release prior to RMM):	5.0E-3
Release fraction to wastewater from process (initial release prior to RMM):	3.0E-6
Release fraction to soil from process (initial release prior to RMM):	0.001
<b><i>Technical conditions and measures at process level (source) to prevent release</i></b>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<b><i>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</i></b>	Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%):	70
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency $\geq$ (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of $\geq$ (%):	0
<b><i>Organizational measures to prevent/limit release from site</i></b>	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

## White Spirit Solvent

<i>Conditions and measures related to municipal sewage treatment plant</i>	
Not applicable as there is no release to wastewater [STP1]	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/d):	4.6E+5
Assumed domestic sewage treatment plant flow ( $m^3/d$ ):	2000
<i>Conditions and measures related to external treatment of waste for disposal</i>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<i>Conditions and measures related to external recovery of waste</i>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
<b>SECTION 3: EXPOSURE ESTIMATION</b>	
<b><u>3.1. Health</u></b>	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].	
<b><u>3.2. Environment</u></b>	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].	
<b>SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>	
<b><u>4.1. Health</u></b>	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].	
<b><u>4.2. Environment</u></b>	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.	

## White Spirit Solvent

### EXPOSURE SCENARIO 7 of 16 - Use in metal working fluids/rolling oils - Industrial

#### Worker in Industrial Settings-White spirit solvent

##### SECTION 1: EXPOSURE SCENARIO TITLE

Title	Use in metal working fluids / rolling oils
Use Descriptors	
<u>Sector of use category (SU): Main User Groups</u>	
SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
<u>Process category (PROC)</u>	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4	Chemical production where opportunity for exposure arises.
PROC5	Mixing or blending in batch processes.
PROC7	Industrial spraying.
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC10	Roller application or brushing.
PROC13	Treatment of articles by dipping and pouring.
PROC17	Lubrication at high energy conditions in metal working operations.
<u>Environmental Release Category (ERC)</u>	
ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article).
Specific Environmental Release Categories	ESVOC 4.7a.v1
Processes, tasks, activities covered	Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<u>Section 2.1: Control of worker exposure</u>	
<u>Product characteristics</u>	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
Concentration of substance in product	Up to 100 % (unless stated).

## White Spirit Solvent

<i>Amounts used</i>	No limit.
<i>Frequency and duration of use</i>	Covers daily exposures up to 8 hours (unless stated differently) [G2].
<i>Other Operational Conditions affecting worker exposure</i>	Assumes a good basic standard of occupational hygiene is implemented [G1].
	Assumes use at not more than 20°C above ambient temperature [G15].
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
PROC1 General exposures (closed systems) [CS15].	No other specific measures identified [EI20].
PROC2 General exposures (closed systems) [CS15].	No other specific measures identified [EI20].
PROC3 General exposures (closed systems) [CS15].	No other specific measures identified [EI20].
PROC4 General exposures (open systems) [CS16].	No other specific measures identified [EI20].
PROC8b Bulk transfers [CS14].	No other specific measures identified [EI20].
PROC8b Filling / preparation of equipment from drums or containers [CS45].	No other specific measures identified [EI20].
PROC5 Filling / preparation of equipment from drums or containers [CS45].	No other specific measures identified [EI20].
PROC9 Filling / preparation of equipment from drums or containers [CS45].	No other specific measures identified [EI20].
PROC8b Process sampling [CS2].	No other specific measures identified [EI20].
PROC17 Metal machining operations [CS79].	No other specific measures identified [EI20].
PROC13 Treatment by dipping and pouring [CS35].	No other specific measures identified [EI20].
PROC7 Spraying [CS10].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].
PROC10 Manual applications e.g. brushing, rolling [CS13].	No other specific measures identified [EI20].
PROC2 Automated metal rolling/forming [CS80]. Use in contained systems [CS38]. Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7] .	No other specific measures identified [EI20].
PROC17 Semi-automated metal rolling/forming [CS83]. Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7].	No other specific measures identified [EI20].
PROC8b Semi-automated metal rolling/forming [CS83].	No other specific measures identified [EI20].

## White Spirit Solvent

PROC8a Equipment cleaning and maintenance [CS39]. Dedicated facility [CS81].	No other specific measures identified [EI20].
PROC1 Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82].	No other specific measures identified [EI20].
PROC1 Material storage [CS67]	No other specific measures identified [EI20].
<b><u>Section 2.2: Control of environmental exposure</u></b>	
<b><i>Product characteristics</i></b>	Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].
<b><i>Amounts used</i></b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.0E+2
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	1.0E+2
Maximum daily site tonnage (kg/day):	5.0E+3
<b><i>Frequency and duration of use</i></b>	
[FD2] Continuous release.	
Emission Days (days/year):	20
<b><i>Environmental factors not influenced by risk management</i></b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b><i>Other Operational Conditions of use affecting environmental exposure</i></b>	
Release fraction to air from process (initial release prior to RMM):	0.02
Release fraction to wastewater from process (initial release prior to RMM):	3.0E-6
Release fraction to soil from process (initial release prior to RMM):	0
<b><i>Technical conditions and measures at process level (source) to prevent release</i></b>	
	Common practices vary across sites thus conservative process release estimates used [TCS1].
<b><i>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</i></b>	
Treat air emission to provide a typical removal efficiency $\geq$ (%):	70
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of $\geq$ (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):	0
<b><i>Organizational measures to prevent/limit release from site</i></b>	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2].

## White Spirit Solvent

	Sludge should be incinerated, contained or reclaimed [OMS3].
<b>Conditions and measures related to municipal sewage treatment plant</b>	
Not applicable as there is no release to wastewater [STP1].	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{\text{safe}}$ ) based on release following total wastewater treatment removal (kg/d):	2.9E+6
[STP5] Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{d}$ ):	2000
<b>Conditions and measures related to external treatment of waste for disposal</b>	
	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<b>Conditions and measures related to external recovery of waste</b>	
	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

### SECTION 3: EXPOSURE ESTIMATION

#### 3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrork model [EE2].

### SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

#### 4.1. Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

#### 4.2. Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2].

Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].

Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.

## White Spirit Solvent

### EXPOSURE SCENARIO 8 of 16 - Use in laboratories - Industrial

<b>Worker in Industrial Settings-White spirit solvent</b>	
<b>SECTION 1: EXPOSURE SCENARIO TITLE</b>	
Title	Use in laboratories.
Use Descriptors	
<b><u>Sector of use category (SU): Main User Groups</u></b>	
SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
<b><u>Process category (PROC)</u></b>	
PROC10	Roller application or brushing.
PROC15	Use as laboratory reagent.
<b><u>Environmental Release Category (ERC)</u></b>	
ERC2	Formulation into mixture.
ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article).
Specific Environmental Release Category	Not applicable.
Processes, tasks, activities covered	Use of the substance within laboratory settings, including material transfers and equipment cleaning.
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<b><u>Section 2.1: Control of worker exposure</u></b>	
<b><u>Product characteristics</u></b>	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
Concentration of substance in product	Up to 100 % (unless stated).
Amounts used	No limit.
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated) [G2].
Other Operational Conditions affecting worker exposure	Assumes a good basic standard of occupational hygiene is implemented [G1]. Assumes use at not more than 20°C above ambient temperature [G15].
<b>Contributing Scenarios</b>	
<b>Risk Management Measures</b>	
PROC10 Cleaning [CS47].	No other specific measures identified [E120].
PROC15 Laboratory activities [CS36].	No other specific measures identified [E120].
<b><u>Section 2.2: Control of environmental exposure</u></b>	
<b><u>Product characteristics</u></b>	
	Substance is complex UVCB [PrC3].
	Predominantly hydrophobic [PrC4a].
Amounts used	

## White Spirit Solvent

Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.0E-2
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	1.0E-2
Maximum daily site tonnage (kg/day):	5.0E-1
<b>Frequency and duration of use</b>	
[FD2] Continuous release.	
Emission Days (days/year):	20
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions of use affecting environmental exposure</b>	
Release fraction to air from process (initial release prior to RMM):	0.025
Release fraction to wastewater from process (initial release prior to RMM):	0.02
Release fraction to soil from process (initial release prior to RMM):	0.0001
<b>Technical conditions and measures at process level (source) to prevent release</b>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency $\geq$ (%):	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of $\geq$ (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):	0
<b>Organizational measures to prevent/limit release from site</b>	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<b>Conditions and measures related to municipal sewage treatment plant</b>	
Not applicable as there is no release to wastewater [STP1].	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{\text{safe}}$ ) based on release following total wastewater treatment removal (kg/d):	3.4E+2
Assumed domestic sewage treatment plant flow	



## White Spirit Solvent

(m <sup>3</sup> /d):	2000
<i>Conditions and measures related to external treatment of waste for disposal</i>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<i>Conditions and measures related to external recovery of waste</i>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
<b>SECTION 3: EXPOSURE ESTIMATION</b>	
<b><u>3.1. Health</u></b>	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].	
<b><u>3.2. Environment</u></b>	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].	
<b>SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>	
<b><u>4.1. Health</u></b>	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].	
<b><u>4.2. Environment</u></b>	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].	

## White Spirit Solvent

### EXPOSURE SCENARIO 9 of 16 - Uses in coatings - Professional

#### Worker in Professional Settings-White spirit solvent

##### SECTION 1: EXPOSURE SCENARIO TITLE

Title	Uses in coatings.
Use Descriptors	
<b><u>Sector of use category (SU): Main User Groups</u></b>	
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen).
<b><u>Process category (PROC)</u></b>	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4	Chemical production where opportunity for exposure arises.
PROC5	Mixing or blending in batch processes.
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC10	Roller application or brushing.
PROC11	Non industrial spraying.
PROC13	Treatment of articles by dipping and pouring.
PROC15	Use as laboratory reagent.
PROC19	Manual activities involving hand contact.
<b><u>Environmental Release Category (ERC)</u></b>	
ERC8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).
ERC8d	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).
Specific Environmental Release Category	ESVOC 8.3b.v1
Processes, tasks, activities covered	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods and film formation), and equipment cleaning, maintenance and associated laboratory activities.
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<b><u>Section 2.1: Control of worker exposure</u></b>	
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at

## White Spirit Solvent

	STP [OC3].
<i>Concentration of substance in product</i>	Up to 100 % (unless stated).
<i>Amounts used</i>	No limit.
<i>Frequency and duration of use</i>	Covers daily exposures up to 8 hours (unless stated) [G2].
<i>Human factors not influenced by risk management</i>	
<i>Other Operational Conditions affecting worker exposure</i>	Assumes a good basic standard of occupational hygiene is implemented [G1]. Assumes use at not more than 20°C above ambient temperature [G15].
<b>Contributing Scenarios</b>	
<b>Risk Management Measures</b>	
<b><u>Section 2.2: Control of environmental exposure</u></b>	
PROC1 General exposures (closed systems) [CS15].	Handle substance within a closed system [E47].
PROC2 Filling / preparation of equipment from drums or containers [CS45]. Use in contained systems [CS38].	Handle substance within a closed system [E47].
PROC2 General exposures (closed systems) [CS15]. Use in contained systems [CS38].	Handle substance within a closed system [E47].
PROC3 Preparation of material for application [CS96]. Use in contained batch processes [CS37].	No other specific measures identified [E120].
PROC4 Film formation - air drying [CS95]. Outdoor [OC9].	No other specific measures identified [E120].
PROC4 Film formation - air drying [CS95]. Indoor [OC8].	No other specific measures identified [E120].
PROC5 Preparation of material for application [CS96]. Indoor [OC8].	No other specific measures identified [E120].
PROC5 Preparation of material for application [CS96]. Outdoor [OC9].	No other specific measures identified [E120].
PROC8a Material transfers [CS3]. Drum/batch transfers [CS8].	No other specific measures identified [E120].
PROC8b Material transfers [CS3]. Drum/batch transfers [CS8]. Dedicated facility [CS81].	No other specific measures identified [E120].

## White Spirit Solvent

PROC10 Roller, spreader, flow application [CS98]. Indoor [OC8].	No other specific measures identified [EI20].
PROC10 Roller, spreader, flow application [CS98]. Outdoor [OC9].	No other specific measures identified [EI20].
PROC11 Manual [CS34]. Spraying [CS10]. Indoor [OC8].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40] OR Wear a respirator conforming to EN140 with Type A filter or better [PPE22]
PROC11 Manual [CS34]. Spraying [CS10]. Outdoor [OC9].	Ensure operation is undertaken outdoors [E69] Avoid carrying out activities involving exposure for more than 4 hours [OC28]. OR Ensure operation is undertaken outdoors [E69] Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
PROC13 Dipping, immersion and pouring [CS4]. Indoor [OC8]	Avoid manual contact with wet work pieces [EI17].
PROC13 Dipping, immersion and pouring [CS4]. Outdoor [OC9].	Avoid manual contact with wet work pieces [EI17].
PROC15 Laboratory activities [CS36]	No other specific measures identified [EI20].
PROC19 Hand application - fingerpaints, pastels, adhesives [CS72]. Indoor [OC8]	No other specific measures identified [EI20].
PROC19 Hand application - fingerpaints, pastels, adhesives [CS72]. Outdoor [OC9].	No other specific measures identified [EI20].
<b>Product characteristics</b>	Substance is complex UVCB [PrC3].
	Predominantly hydrophobic [PrC4a].
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.7E+3
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	8.4E-1
Maximum daily site tonnage (kg/day):	2.3
<b>Frequency and duration of use</b>	
[FD2] Continuous release.	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10

## White Spirit Solvent

Local marine water dilution factor:	100
<b><i>Other Operational Conditions of use affecting environmental exposure</i></b>	
Release fraction to air from wide dispersive use (regional only):	0.98
Release fraction to wastewater from wide dispersive use:	0.01
Release fraction to soil from wide dispersive use (regional only):	0.01
<b><i>Technical conditions and measures at process level (source) to prevent release</i></b>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<b><i>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</i></b>	Risk from environmental exposure is driven by soil [TCR1f]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%)	N/A
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency $\geq$ (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of $\geq$ (%):	0
<b><i>Organizational measures to prevent/limit release from site</i></b>	Prevent discharge of undissolved to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<b><i>Conditions and measures related to municipal sewage treatment plant</i></b>	
Not applicable as there is no release to wastewater [STP1]	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{safe}$ ) based on release following total wastewater treatment removal (kg/d):	1.9E+3
Assumed domestic sewage treatment plant flow ( $m^3/d$ ):	2000
<b><i>Conditions and measures related to external treatment of waste for disposal</i></b>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<b><i>Conditions and measures related to external recovery of waste</i></b>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

### SECTION 3: EXPOSURE ESTIMATION

#### 3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].

**3.2. Environment**

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

**SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**

**4.1. Health**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

**4.2. Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2].

Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].

Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.

## White Spirit Solvent

### EXPOSURE SCENARIO 10 of 16 - Use in cleaning agents - Professional

#### Worker in Professional Settings-White spirit solvent

##### SECTION 1: EXPOSURE SCENARIO TITLE

Title	Use in cleaning agents.
Use Descriptors	
<b><u>Sector of use category (SU): Main User Groups</u></b>	
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b><u>Process category (PROC)</u></b>	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4	Chemical production where opportunity for exposure arises.
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC10	Roller application or brushing.
PROC11	Non industrial spraying.
PROC13	Treatment of articles by dipping and pouring.
<b><u>Environmental Release Category (ERC)</u></b>	
ERC8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).
ERC8d	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).
Specific Environmental Release Category	ESVOC8.4b.v1
Processes, tasks, activities covered	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<b><u>Section 2.1: Control of worker exposure</u></b>	
<b><u>Product characteristics</u></b>	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
Concentration of substance in product	Up to 100 % (unless stated).
Amounts used	No limit.
Frequency and duration of use	Covers daily exposures up to 8 hours

## White Spirit Solvent

	(unless stated) [G2].
<i>Other Operational Conditions affecting worker exposure</i>	Assumes a good basic standard of occupational hygiene is implemented [G1].
	Assumes use at not more than 20°C above ambient temperature [G15].
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
<b><u>Section 2.2: Control of environmental exposure</u></b>	
PROC8b Filling / preparation of equipment from drums or containers [CS45]	No other specific measures identified [E120].
PROC2 Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38].	No other specific measures identified [E120].
PROC3 Automated process with (semi) closed systems [CS93]. Drum/batch transfers [CS8]. Use in contained systems [CS38].	No other specific measures identified [E120].
PROC4 Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products) [CS76].	No other specific measures identified [E120].
PROC8a Filling / preparation of equipment from drums or containers [CS45].	No other specific measures identified [E120].
PROC13 Manual [CS34]. Surfaces [CS48]. Cleaning [CS47]. Dipping, immersion and pouring [CS4].	No other specific measures identified [E120].
PROC10 Cleaning with low-pressure washers [CS42]. Rolling, Brushing [CS51]. no spraying [CS60].	No other specific measures identified [E120].
PROC11 Cleaning with high pressure washers [CS44]. Spraying [CS10]. Indoor [OC8].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40]. OR Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
PROC11 Cleaning with high pressure washers [CS44] Spraying [CS10] Outdoor [OC9]	Ensure operation is undertaken outdoors [E69]. Limit the substance content in the product to 25 % [OC18]. OR Wear a respirator conforming to EN140 with Type A filter or better [PPE22].



## White Spirit Solvent

PROC10 Manual [CS34]. Surfaces [CS48]. Cleaning [CS47]. Spraying [CS10].	No other specific measures identified [EI20].
PROC10 Ad hoc manual application via trigger sprays, dipping, etc. [CS27]. Rolling, Brushing [CS51].	No other specific measures identified [EI20].
PROC4 Application of cleaning products in closed systems [CS101]. Outdoor [OC9].	No other specific measures identified [EI20].
PROC4 Cleaning of medical devices [CS74].	No other specific measures identified [EI20].
PROC1 Material storage [CS67].	No other specific measures identified [EI20].
<b>Product characteristics</b>	Substance is complex UVCB [PrC3].
	Predominantly hydrophobic [PrC4a].
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	3.4E+2
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	1.7E-1
Maximum daily site tonnage (kg/day):	4.7E-1
<b>Frequency and duration of use</b>	
[FD2] Continuous release.	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions of use affecting environmental exposure</b>	
Release fraction to air from wide dispersive use (regional only):	0.02
Release fraction to wastewater from wide dispersive use:	0.000001
Release fraction to soil from wide dispersive use (regional only):	0
<b>Technical conditions and measures at process level (source) to prevent release</b>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of %	N/A
Treat onsite wastewater (prior to receiving water	

## White Spirit Solvent

discharge) to provide the required removal efficiency $\geq$ (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of $\geq$ (%):	0
<b>Organizational measures to prevent/limit release from site</b>	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<b>Conditions and measures related to municipal sewage treatment plant</b>	
Not applicable as there is no release to wastewater [STP1]	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{safe}$ ) based on release following total wastewater treatment removal (kg/d):	4.7E+ 2
Assumed domestic sewage treatment plant flow (m <sup>3</sup> /d):	2000
<b>Conditions and measures related to external treatment of waste for disposal</b>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<b>Conditions and measures related to external recovery of waste</b>	This substance is consumed during use and no waste of the substance is generated [ERW3].
<b>Other environmental control measures additional to above</b>	
<b>SECTION 3: EXPOSURE ESTIMATION</b>	
<b><u>3.1. Health</u></b>	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].	
<b><u>3.2. Environment</u></b>	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].	
<b>SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>	
<b><u>4.1. Health</u></b>	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].	
<b><u>4.2. Environment</u></b>	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.	

## White Spirit Solvent

### EXPOSURE SCENARIO 11 of 16 - Lubricants - Professional: High Environmental Release

<b>Worker in Professional Settings-White spirit solvent</b>	
<b>SECTION 1: EXPOSURE SCENARIO TITLE</b>	
Title	Lubricants.
Use Descriptors	
<b><i>Sector of use category (SU): Main User Groups</i></b>	
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen).
<b><i>Process category (PROC)</i></b>	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC4	Chemical production where opportunity for exposure arises.
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC10	Roller application or brushing.
PROC11	Non industrial spraying.
PROC13	Treatment of articles by dipping and pouring.
PROC17	Lubrication at high energy conditions in metal working operations.
PROC18	General greasing /lubrication at high kinetic energy conditions.
PROC20	Use of functional fluids in small devices.
<b><i>Environmental Release Category (ERC)</i></b>	
ERC8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).
ERC8d	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).
Specific Environmental Release Category	ESVOC 8.6c.v1
Processes, tasks, activities covered	Covers the use of formulated lubricants in closed or contained systems including transfers operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

**SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**

**Section 2.1: Control of worker exposure**

<i>Product characteristics</i>	
<i>Physical form of product</i>	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
<i>Concentration of substance in product</i>	Up to 100 % (unless stated).
<i>Amounts used</i>	No limit.
<i>Frequency and duration of use</i>	Covers daily exposures up to 8 hours (unless stated) [G2].
<i>Other Operational Conditions affecting worker exposure</i>	Assumes a good basic standard of occupational hygiene is implemented [G1]. Assumes use at not more than 20°C above ambient temperature [G15].

<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
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**Section 2.2: Control of environmental exposure**

PROC1 General exposures (closed systems) [CS15]	No other specific measures identified [EI20].
PROC2 General exposures (closed systems) [CS15]	No other specific measures identified [EI20].
PROC3 General exposures (closed systems) [CS15]	No other specific measures identified [EI20].
PROC20 Operation of equipment containing engine oils and similar [CS26]	No other specific measures identified [EI20].
PROC4 General exposures (open systems) [CS16]	No other specific measures identified [EI20].
PROC8b Bulk transfers [CS14]	No other specific measures identified [EI20].
PROC8b Filling / preparation of equipment from drums or containers [CS45] Dedicated facility [CS81]	No other specific measures identified [EI20].
PROC8a Filling / preparation of equipment from drums or containers [CS45] Non-dedicated facility [CS82]	No other specific measures identified [EI20].
PROC17 Operation and lubrication of high energy open equipment [CS17] Indoor [OC8]	No other specific measures identified [EI20].
PROC18 Operation and lubrication of high energy open equipment [CS17]	No other specific measures identified [EI20].

## White Spirit Solvent

PROC17 Operation and lubrication of high energy open equipment [CS17]Outdoor [OC9]	No other specific measures identified [E120].
PROC8b Maintenance (of larger plant items) and machine set up [CS77]	No other specific measures identified [E120].
PROC8b Maintenance (of larger plant items) and machine set up [CS77] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7 ]	No other specific measures identified [E120].
PROC8a Maintenance of small items [CS18] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7]	Drain or remove substance from equipment prior to break-in or maintenance [E81].
PROC9 Engine lubricant service [CS78]	No other specific measures identified [E120].
PROC10 Manual applications e.g. brushing, rolling [CS13]	No other specific measures identified [E120].
PROC11 Spraying [CS10]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].
PROC13 Treatment by dipping and pouring [CS35]	No other specific measures identified [E120].
PROC1 Material storage [CS67]	No other specific measures identified [E120].
PROC2 Material storage [CS67]	No other specific measures identified [E120].
<b>Product characteristics</b>	Substance is complex UVCB [PrC3].
	Predominantly hydrophobic [PrC4a].
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	3.5E+1
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	1.8E-2
Maximum daily site tonnage (kg/day):	4.8E-2
<b>Frequency and duration of use</b>	
[FD2] Continuous release.	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100

## White Spirit Solvent

<i>Other Operational Conditions of use affecting environmental exposure</i>	
Release fraction to air from wide dispersive use (regional only):	1.5E-1
Release fraction to wastewater from wide dispersive use:	0.05
Release fraction to soil from wide dispersive use (regional only):	0.05
<i>Technical conditions and measures at process level (source) to prevent release</i>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<i>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</i>	Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of %	N/A
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):	0
<i>Organizational measures to prevent/limit release from site</i>	Prevent discharge of undissolved substance to or recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<i>Conditions and measures related to municipal sewage treatment plant</i>	
Not applicable as there is no release to wastewater [STP1].	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/d):	4.3E+1
Assumed domestic sewage treatment plant flow ( $m^3/d$ ):	2000
<i>Conditions and measures related to external treatment of waste for disposal</i>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<i>Conditions and measures related to external recovery of waste</i>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
<b>SECTION 3: EXPOSURE ESTIMATION</b>	
<b><u>3.1. Health</u></b>	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].	
<b><u>3.2. Environment</u></b>	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorkisk model [EE2].	

**SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**

**4.1. Health**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].  
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

**4.2. Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].  
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2].  
Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].  
Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.

## White Spirit Solvent

EXPOSURE SCENARIO 12 of 16 - Use in metal working fluids / rolling oils -  
Professional: High Environmental release

### Worker in Professional Settings-White spirit solvent

#### SECTION 1: EXPOSURE SCENARIO TITLE

Title	Use in metal working fluids / rolling oils.
Use Descriptors	
<u>Sector of use category (SU): Main User Groups</u>	
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<u>Process category (PROC)</u>	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.
PROC5	Mixing or blending in batch processes.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC10	Roller application or brushing
PROC11	Non industrial spraying
PROC13	Treatment of articles by dipping and pouring
PROC17	Lubrication at high energy conditions in metal working operations.
<u>Environmental Release Category (ERC)</u>	
ERC8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).
ERC8d	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).
Specific Environmental Release Category	ESVOC8.7c.v1
Processes, tasks, activities covered	Covers the use in formulated MWFs including transfer operations, open and contained cutting/machining activities, automated and manual application of corrosion protections, draining and working on contaminated/ reject articles, and disposal of waste oils.
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<u>Section 2.1: Control of worker exposure</u>	
<u>Product characteristics</u>	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at



## White Spirit Solvent

	STP [OC3].
<i>Concentration of substance in product</i>	Up to 100 % (unless stated).
<i>Amounts used</i>	No limit.
<i>Frequency and duration of use</i>	Covers daily exposures up to 8 hours (unless stated) [G2].
<i>Other Operational Conditions affecting worker exposure</i>	Assumes a good basic standard of occupational hygiene is implemented [G1].
	Assumes use at not more than 20°C above ambient temperature [G15].
<b>Contributing Scenarios</b> <span style="float: right;"><b>Risk Management Measures</b></span>	
<b><u>Section 2.2: Control of environmental exposure</u></b>	
PROC1 General exposures (closed systems) [CS15].	Handle substance within a closed system [E47].
PROC2 General exposures (closed systems) [CS15].	Handle substance within a closed system [E47].
PROC3 General exposures (closed systems) [CS15].	Handle substance within a closed system [E47].
PROC8b Bulk transfers [CS14].	No other specific measures identified [E120].
PROC8b Filling / preparation of equipment from drums or containers [CS45]. Dedicated facility [CS81].	No other specific measures identified [E120].
PROC9 Filling / preparation of equipment from drums or containers [CS45]. Dedicated facility [CS81].	No other specific measures identified [E120].
PROC8a Filling / preparation of equipment from drums or containers. [CS45]. Non-dedicated facility [CS82].	No other specific measures identified [E120].
PROC8b Process sampling [CS2].	Use dedicated equipment [E85].
PROC17 Metal machining operations [CS79].	No other specific measures identified [E120].
PROC10 Manual applications e.g. brushing, rolling [CS13].	No other specific measures identified [E120].
PROC11 Spraying [CS10].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40]. OR Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29].
PROC13 Treatment by dipping and	Allow time for product to drain from workpiece [E121].

**White Spirit Solvent**

pouring [CS35].	
PROC8a Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82].	No other specific measures identified [EI20].
PROC8b Equipment cleaning and maintenance [CS39]. Dedicated facility [CS81].	No other specific measures identified [EI20].
PROC1 Material storage [CS67].	Store substance within a closed system [E84].
PROC2 Material storage [CS67].	Store substance within a closed system [E84].
PROC5 Filling / preparation of equipment from drums or containers [CS45].	No other specific measures identified [EI20].
<b>Product characteristics</b>	Substance is complex UVCB [PrC3].
	Predominantly hydrophobic [PrC4a].
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.9E+1
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	9.3E-3
Maximum daily site tonnage (kg/day):	2.5E-2
<b>Frequency and duration of use</b>	
[FD2] Continuous release.	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions of use affecting environmental exposure</b>	
Release fraction to air from wide dispersive use (regional only):	1.5E-1
Release fraction to wastewater from wide dispersive use:	0.05
Release fraction to soil from wide dispersive use (regional only):	0.05
<b>Technical conditions and measures at process level (source) to prevent release</b>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%)	N/A
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency	

## White Spirit Solvent

≥ (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥(%):	0
<b>Organizational measures to prevent/limit release from site</b>	Prevent discharge of undissolved substance to oe recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<b>Conditions and measures related to municipal sewage treatment plant</b>	
Not applicable as there is no release to wastewater [STP1]	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/d):	2.4E+1
Assumed domestic sewage treatment plant flow (m <sup>3</sup> /d):	2000
<b>Conditions and measures related to external treatment of waste for disposal</b>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<b>Conditions and measures related to external recovery of waste</b>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
<b>SECTION 3: EXPOSURE ESTIMATION</b>	
<b><u>3.1. Health</u></b>	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].	
<b><u>3.2. Environment</u></b>	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].	
<b>SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>	
<b><u>4.1. Health</u></b>	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22]. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].	
<b><u>4.2. Environment</u></b>	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.	

## White Spirit Solvent

EXPOSURE SCENARIO 13 of 16 - Use in road and construction applications - Professional

<b>Worker in Professional Settings-White spirit solvent</b>	
<b>SECTION 1: EXPOSURE SCENARIO TITLE</b>	
Title	Use in road and construction applications.
Use Descriptors	
<b><u>Sector of use category (SU): Main User Groups</u></b>	
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b><u>Process category (PROC)</u></b>	
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities.
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities.
PROC9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing).
PROC10	Roller application or brushing.
PROC11	Non industrial spraying.
PROC13	Treatment of articles by dipping and pouring.
<b><u>Environmental Release Category (ERC)</u></b>	
ERC8d	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).
ERC8f	Widespread use leading to inclusion into/onto article (outdoor).
Specific Environmental Release Category	ESVOC8.15v1
Processes, tasks, activities covered	Application of surface coatings and binders in road and construction activities, including paving uses, manual mastic and in the application of roofing and water-proofing membranes.
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<b><u>Section 2.1: Control of worker exposure</u></b>	
<b><i>Product characteristics</i></b>	
<b><i>Physical form of product</i></b>	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
<b><i>Concentration of substance in product</i></b>	Up to 100 % (unless stated) .
<b><i>Amounts used</i></b>	No limit.
<b><i>Frequency and duration of use</i></b>	Covers daily exposures up to 8 hours (unless stated) [G2].
<b><i>Other Operational Conditions affecting worker exposure</i></b>	Assumes a good basic standard of occupational hygiene is implemented [G1]. Assumes use at not more than 20°C above ambient temperature [G15].
<b>Contributing Scenarios</b>	<b>Risk Management Measures</b>
<b><u>Section 2.2: Control of environmental exposure</u></b>	
PROC8a	No other specific measures identified [E120].

## White Spirit Solvent

Drum/batch transfers [CS8] Non-dedicated facility [CS82]	
PROC8b Drum/batch transfers [CS8] Dedicated facility [CS81]	Use dedicated equipment [E85]. Clear transfer lines prior to de-coupling [E39].
PROC8b Drum/batch transfers [CS8] Dedicated facility [CS81] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7]	Use dedicated equipment [E85]. Clear transfer lines prior to de-coupling [E39].
PROC10 Manual applications e.g. brushing, rolling [CS13]	No other specific measures identified [E120].
PROC11 Spraying/fogging by machine application [CS25] Operation is carried out at elevated temperature (> then 20°C above ambient temperature) [OC7]	Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
PROC11 Spraying/fogging by machine application [CS25]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40].
PROC13 Dipping, immersion and pouring [CS4]	No other specific measures identified [E120].
PROC8a Equipment cleaning and maintenance [CS39]	Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]
PROC9 Drum and small package filling [CS6]	No other specific measures identified [E120].
<b>Product characteristics</b>	Substance is complex UVCB [PrC3].
	Predominantly hydrophobic [PrC4a].
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.9E+2
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	9.3E-2
Maximum daily site tonnage (kg/day):	2.5E-1
<b>Frequency and duration of use</b>	
[FD2] Continuous release.	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100

## White Spirit Solvent

<i>Other Operational Conditions of use affecting environmental exposure</i>	
Release fraction to air from wide dispersive use (regional only):	0.95
Release fraction to wastewater from wide dispersive use:	0.01
Release fraction to soil from wide dispersive use (regional only):	0.04
<i>Technical conditions and measures at process level (source) to prevent release</i>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<i>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</i>	Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of %	N/A
[TCR 8] Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency $\geq$ (%):	0
[TCR10] If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of $\geq$ (%):	0
<i>Organizational measures to prevent/limit release from site</i>	Prevent discharge of undissolved substance to or recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<i>Conditions and measures related to municipal sewage treatment plant</i>	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{safe}$ ) based on release following total wastewater treatment removal (kg/d):	2.3E+2
Assumed domestic sewage treatment plant flow ( $m^3/d$ ):	2000
<i>Conditions and measures related to external treatment of waste for disposal</i>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<i>Conditions and measures related to external recovery of waste</i>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
<i>Other environmental control measures additional to above</i>	
<b>SECTION 3: EXPOSURE ESTIMATION</b>	
<b><u>3.1. Health</u></b>	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].	
<b><u>3.2. Environment</u></b>	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorsk	

model [EE2].

#### **SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**

##### **4.1. Health**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

##### **4.2. Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].

Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.

## White Spirit Solvent

### EXPOSURE SCENARIO 14 of 16 - Use in laboratories - Professional

#### Worker in Professional Settings-White spirit solvent

##### SECTION 1: EXPOSURE SCENARIO TITLE

Title	Use in laboratories.
Use Descriptors	
<b><i>Sector of use category (SU): Main User Groups</i></b>	
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen).
<b><i>Process category (PROC)</i></b>	
PROC10	Roller application or brushing.
PROC15	Use as laboratory reagent.
<b><i>Environmental Release Category (ERC)</i></b>	
ERC8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).
Specific Environmental Release Category	ESVOC8.17.v1
Processes, tasks, activities covered	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.

##### SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES

###### ***Section 2.1: Control of worker exposure***

<b><i>Product characteristics</i></b>	
<i>Physical form of product</i>	Liquid, vapour pressure < 0.5 kPa at STP [OC3].
<i>Concentration of substance in product</i>	Up to 100 % (unless stated).
<i>Amounts used</i>	No limit.
<i>Frequency and duration of use</i>	Covers daily exposures up to 8 hours (unless stated) [G2].
<i>Other Operational Conditions affecting worker exposure</i>	Assumes a good basic standard of occupational hygiene is implemented [G1]. Assumes use at not more than 20°C above ambient temperature [G15].

###### **Contributing Scenarios**

###### **Risk Management Measures**

PROC15 Laboratory activities [CS36]	No other specific measures identified [E120].
PROC10 Cleaning [CS47].	No other specific measures identified [E120].

###### ***Section 2.2: Control of environmental exposure***

<b><i>Product characteristics</i></b>	Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].
<b><i>Amounts used</i></b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.0E-2
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	5.0E-6
Maximum daily site tonnage (kg/day):	1.4E-5



## White Spirit Solvent

<b>Frequency and duration of use</b>	
[FD2] Continuous release.	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions of use affecting environmental exposure</b>	
Release fraction to air from wide dispersive use (regional only):	0.5
Release fraction to wastewater from wide dispersive use:	0.5
Release fraction to soil from wide dispersive use (regional only):	0
<b>Technical conditions and measures at process level (source) to prevent release</b>	Common practices vary across sites thus conservative process release estimates used [TCS1].
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%):	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency $\geq$ (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of $\geq$ (%):	0
<b>Organizational measures to prevent/limit release from site</b>	Prevent discharge of undissolved substance to be recover from wastewater [OMS1]. Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
<b>Conditions and measures related to municipal sewage treatment plant</b>	
Not applicable as there is no release to wastewater [STP1]	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%):	93.7
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/d):	1.4E-2
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{d}$ ):	2000
<b>Conditions and measures related to external treatment of waste for disposal</b>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<b>Conditions and measures related to external</b>	External recovery and recycling of waste

## White Spirit Solvent

<i>recovery of waste</i>	should comply with applicable local and/or national regulations [ERW1].
<b>SECTION 3: EXPOSURE ESTIMATION</b>	
<b><u>3.1. Health</u></b>	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].	
<b><u>3.2. Environment</u></b>	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].	
<b>SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>	
<b><u>4.1. Health</u></b>	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].	
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].	
<b><u>4.2. Environment</u></b>	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].	
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2].	
Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].	
Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.	

## White Spirit Solvent

### EXPOSURE SCENARIO 15 of 16 - Uses in coatings - Consumer

<b>Consumer-White spirit solvent</b>	
<b>SECTION 1: EXPOSURE SCENARIO TITLE</b>	
Title	Uses in coatings.
Use Descriptors	
<b><u>Sector of use category (SU): Main User Groups</u></b>	
SU21	Consumer uses: Private households (= general public = consumers).
<b><u>Chemical product category (PC)</u></b>	
PC1	Adhesives, sealants.
PC4	Anti-Freeze and de-icing products.
PC8	Biocidal products.
PC9a	Coatings and paints, thinners, paint removers.
PC9b	Fillers, putties, plasters, modelling clay.
PC9c	Finger paints.
PC15	Non-metal-surface treatment products.
PC18	Ink and toners.
PC23	Leather treatment products.
PC24	Lubricants, greases, release products.
PC31	Polishes and wax blends.
PC34	Textile dyes, and impregnating products.
Specific Environmental Release Category	ESVOC8.3c.v1
<b><u>Environmental Release Category (ERC)</u></b>	
ERC8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).
ERC8d	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).
Processes, tasks, activities covered	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<b><u>Section 2.1: Control of consumer exposure</u></b>	
<b><u>Product characteristics</u></b>	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP [OC15].
Vapour pressure	231 Pa
Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100% [ConsOC1].
Amounts used	Unless otherwise stated, covers use amounts up to 13800g [ConsOC2]. Covers skin contact area up to 857.5cm <sup>2</sup> [ConsOC5].
Frequency and duration of use	Unless otherwise stated, covers use frequency up to 1 time per day [ConsOC4].

## White Spirit Solvent

	Covers exposure up to 6 hours per event [ConsOC14].
	Unless otherwise stated, covers use frequency up to 365 days per year [ConsOC3]
<i>Other Operational Conditions affecting exposure</i>	Assumes use with typical ventilation [ConsOC8].
	Assumes use in a 20m <sup>3</sup> room [ConsOC11].
	Unless otherwise stated assumes use at ambient temperatures [ConsOC15].
<b>Chemical Product Category</b>	<b>Risk Management Measures</b>
<b>PC1: Adhesives, sealants-Glues, hobby use</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	30%
[ConsOC2] For each use event, covers use amounts up to:	9g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	35.73cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	4.00hr/event
<b>PC1: Adhesives, sealants-Glues DIY-use (carpet glue, tile glue, wood parquet glue)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	30%
[ConsOC2] For each use event, covers use amounts up to:	6390g
[ConsOC3] Covers use up to:	1 day/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	110cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	6.00hr/event
<b>PC1: Adhesives, sealants-Glue from spray</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	30%
[ConsOC2] For each use event, covers use amounts up to:	85.05g
[ConsOC3] Covers use up to:	6 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	35.73cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	4.00hr/event

**White Spirit Solvent**

<b>PC1: Adhesives, sealants-Sealants</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	30%
[ConsOC2] For each use event, covers use amounts up to:	75g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	35.73cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	1.00hr/event
<b>PC4_n: Anti-freeze and de-icing products-Washing car window</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	1%
[ConsOC2] For each use event, covers use amounts up to:	0.5g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC10] Covers use in a one car garage (34m <sup>3</sup> ) under	typical ventilation
[ConsOC11] Covers use in room size of:	34m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.02hr/event
<b>PC4_n: Anti-freeze and de-icing products-Pouring into radiator</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	10%
[ConsOC2] For each use event, covers use amounts up to:	2000g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428.00cm <sup>2</sup>
[ConsOC10] Covers use in a one car garage (34m <sup>3</sup> ) under	typical ventilation
[ConsOC11] Covers use in room size of:	34m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.17hr/event
<b>PC4_n: Anti-freeze and de-icing products-Lock de-icer</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	4g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	214.40cm <sup>2</sup>
[ConsOC10] Covers use in a one car garage (34m <sup>3</sup> ) under	typical ventilation
[ConsOC11] Covers use in room size of:	34m <sup>3</sup>

## White Spirit Solvent

[ConsOC14] For each use event, covers exposure up to:	0.25hr/event
<b>PC8_n: Biocidal products (excipient use only for solvent products)-Laundry and dish washing products</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	5%
[ConsOC2] For each use event, covers use amounts up to:	15g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	857.50cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.50hr/event
<b>PC8_n: Biocidal products (excipient use only for solvent products)-Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners )</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	5%
[ConsOC2] For each use event, covers use amounts up to:	27g
[ConsOC3] Covers use up to:	128 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	857.50cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.33hr/event
<b>PC8_n: Biocidal products (excipient use only for solvent products)-Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	15%
[ConsOC2] For each use event, covers use amounts up to:	35g
[ConsOC3] Covers use up to:	128 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428.00cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.17hr/event
<b>PC9a:Coatings and paints, fillers putties, thinners-Waterborne latex wall paint</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	1.5%
[ConsOC2] For each use event, covers use amounts up to:	2760g
[ConsOC3] Covers use up to:	4 days/year

## White Spirit Solvent

[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428.00cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.20hr/event
<b>PC9a:Coatings and paints, fillers putties, thinners-Solvent rich, high solid, water borne paint</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	27.5%
[ConsOC2] For each use event, covers use amounts up to:	744g
[ConsOC3] Covers use up to:	6 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428.75cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.20hr/event
<b>PC9a:Coatings and paints, fillers putties, thinners-Aerosol spray can</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	215g
[ConsOC3] Covers use up to:	2 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC10] Covers use in a one car garage (34m <sup>3</sup> ) under typical ventilation	
[ConsOC11] Covers use in room size of:	34m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.00hr/event
<b>PC9b:Fillers, putties, plasters, modelling clay-Fillers and putty</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	2%
[ConsOC2] For each use event, covers use amounts up to:	85g
[ConsOC3] Covers use up to:	12 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	35.73cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	4.00hr/event
<b>PC9b:Fillers, putties, plasters, modelling clay-Plasters and floor equalizers</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	2%
[ConsOC2] For each use event, covers use amounts up to:	13800g

## White Spirit Solvent

[ConsOC3] Covers use up to:	12 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	857.50cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.00hr/event
<b>PC9b: Fillers, putties, plasters, modelling clay-Modelling clay</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	1%
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	254.40cm <sup>2</sup>
[ConsOC13] For each use event, assumes swallowed amount of:	1g
<b>PC9c: Finger paints-Finger paints</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	254.40cm <sup>2</sup>
[ConsOC13] For each use event, assumes swallowed amount of:	1.35g
<b>PC15_n: Non-metal surface treatment products-Waterborne latex wall paint</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	1.5%
[ConsOC2] For each use event, covers use amounts up to:	2760g
[ConsOC3] Covers use up to:	4 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428.75cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.20hr/event
<b>PC15_n: Non-metal surface treatment products-Solvent rich, high solid, waterborne paint</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	27.5%
[ConsOC2] For each use event, covers use amounts up to:	744g
[ConsOC3] Covers use up to:	6 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428.75cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation



## White Spirit Solvent

[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.20hr/event
<b>PC15_n: Non-metal surface treatment products-Aerosol spray can</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	215g
[ConsOC3] Covers use up to:	2 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428.75cm <sup>2</sup>
[ConsOC10] Covers use in a one car garage (34m <sup>3</sup> ) under typical ventilation	
[ConsOC11] Covers use in room size of:	34m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.33hr/event
<b>PC15_n: Non-metal surface treatment products-Removers (paint-, glue-, wallpaper-, sealant-remover)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	491g
[ConsOC3] Covers use up to:	3 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	857.50cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.00hr/event
<b>PC18_n: Ink and toners--Inks and toners</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	10%
[ConsOC2] For each use event, covers use amounts up to:	40g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	71.40cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.20hr/event
<b>PC23_n: Leather tanning, dye, finishing, impregnation and care products-Polishes, wax / cream (floor, furniture, shoes)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	56g

## White Spirit Solvent

[ConsOC3] Covers use up to:	29 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	430cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	1.23hr/event
<b>PC23_n: Leather tanning, dye, finishing, impregnation and care products-Polishes, spray (furniture, shoes)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	56g
[ConsOC3] Covers use up to:	8 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	430cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.33hr/event
<b>PC24: Lubricants, greases, and release products-Liquids</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	100%
[ConsOC2] For each use event, covers use amounts up to:	2200g
[ConsOC3] Covers use up to:	4 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	468cm <sup>2</sup>
[ConsOC10] Covers use in a one car garage (34m <sup>3</sup> ) under	typical ventilation
[ConsOC11] Covers use in room size of:	34m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.17hr/event
<b>PC24: Lubricants, greases, and release products-Pastes</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	20%
[ConsOC2] For each use event, covers use amounts up to:	34g
[ConsOC3] Covers use up to:	10 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	468cm <sup>2</sup>
<b>PC24: Lubricants, greases, and release products-Sprays</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	73g

## White Spirit Solvent

[ConsOC3] Covers use up to:	6 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428.75cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.17hr/event
<b>PC31: Polishes and wax blends-Polishes, wax / cream (floor, furniture, shoes)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	142g
[ConsOC3] Covers use up to:	29 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	430cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	1.23hr/event
<b>PC31: Polishes and wax blends-Polishes, spray (furniture, shoes)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	35g
[ConsOC3] Covers use up to:	8 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	430cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.33hr/event
<b>PC34_n: Textile dyes, finishing and impregnating products</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	10%
[ConsOC2] For each use event, covers use amounts up to:	115g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	857.50cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	1.00hr/event
No specific RMMs identified beyond those OCs stated.	
<b><u>Section 2.2: Control of environmental exposure</u></b>	

## White Spirit Solvent

<i>Product characteristics</i>	Substance is complex UVCB [PrC3].
	Predominantly hydrophobic [PrC4a].
<i>Amounts used</i>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	4.4E+3
Fraction of Regional tonnage used locally:	0.0005
Annual site tonnage (tonnes/year):	2.2E+0
Maximum daily site tonnage (kg/day):	6.0E+0
<i>Frequency and duration of use</i>	
[FD2] Continuous release.	
Emission Days (days/year):	365
<i>Environmental factors not influenced by risk management</i>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<i>Other Operational Conditions of use affecting environmental exposure</i>	
Release fraction to air from wide dispersive use (regional only):	0.985
Release fraction to wastewater from wide dispersive use:	0.010
Release fraction to soil from wide dispersive use (regional only):	0.005
<i>Conditions and measures related to municipal sewage treatment plant</i>	
Not applicable as there is no release to wastewater [STP1]	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Maximum allowable site tonnage ( $M_{\text{Safe}}$ ) based on release following total wastewater treatment removal (kg/d):	1900
Assumed domestic sewage treatment plant flow ( $\text{m}^3/\text{d}$ ):	2000
<i>Conditions and measures related to external treatment of waste for disposal</i>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<i>Conditions and measures related to external recovery of waste</i>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].

### SECTION 3: EXPOSURE ESTIMATION

#### 3.1. Health

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated [G30].

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrорisk model [EE2].

### SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

#### 4.1. Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management

## White Spirit Solvent

Measures/Operational Conditions outlined in Section 2 are implemented [G22].  
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

### **4.2. Environment**

Guidance is based on assumed operating conditions, which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1].  
Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.

## White Spirit Solvent

### EXPOSURE SCENARIO 16 of 16 - Use in cleaning agents - Consumer

<b>Consumer-White spirit solvent</b>	
<b>SECTION 1: EXPOSURE SCENARIO TITLE</b>	
Title	Use in cleaning agents.
Use Descriptors	
<b><u>Sector of use category (SU): Main User Groups</u></b>	
SU21	Consumer uses: Private households (= general public = consumers).
<b><u>Chemical product category (PC)</u></b>	
PC3	Air care products.
PC4	Anti-Freeze and de-icing products.
PC8	Biocidal products.
PC9a	Coatings and paints, thinners, paint removers.
PC9b	Fillers, putties, plasters, modelling clay.
PC9c	Finger paints.
PC24	Lubricants, greases, release products.
PC35	Washing and cleaning products.
PC38	Welding and soldering products, flux products.
<b><u>Environmental Release Category (ERC)</u></b>	
ERC8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).
ERC8d	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).
Specific Environmental Release Category	ESVOC8.4c.v1
Processes, tasks, activities covered	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.
<b>SECTION 2: OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES</b>	
<b><u>Section 2.1: Control of consumer exposure</u></b>	
<b><u>Product characteristics</u></b>	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP [OC15].
Vapour pressure (Pa)	231
Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100% [ConsOC1].
Amounts used	Unless otherwise stated, covers use amounts up to 13800g [ConsOC2]. Covers skin contact area up to 857.5cm <sup>2</sup> [ConsOC5].
Frequency and duration of use	Unless otherwise stated, covers use frequency up to 4 times per day [ConsOC4].

## White Spirit Solvent

	Covers exposure up to 8 hours per event [ConsOC14].
	Unless otherwise stated, covers frequency up to 365 days per year [ConsOC3]
<i>Other Operational Conditions affecting exposure</i>	Assumes use with typical ventilation [ConsOC8].
	Assumes use in a 20m <sup>3</sup> room [ConsOC11].
	Unless otherwise stated assumes use at ambient temperatures [ConsOC15].
Chemical Product Category	
Risk Management Measures	
<b>PC3: Air care products-Air care, instant action (aerosol sprays)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	0.1g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	4 times/on day of use
[ConsOC5] Covers skin contact area up to:	35.73cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.25hr/event
<b>PC3: Air care products-Air care, instant action (aerosol sprays)-pesticidal-exipient only</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	5g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	4 times/on day of use
[ConsOC5] Covers skin contact area up to:	110cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.25hr/event
<b>PC3: Air care products-Air care, continuous action (solid and liquid)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	10%
[ConsOC2] For each use event, covers use amounts up to:	0.48g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	35.70cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	8.00hr/event

**White Spirit Solvent**

<b>PC3: Air care products-Air care, continuous action (solid and liquid)-pesticidal-exciptent only</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	0.48g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	35.70cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	8.00hr/event
<b>PC4_n: Anti-freeze and de-icing products-Washing car window</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	1%
[ConsOC2] For each use event, covers use amounts up to:	0.5g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC10] Covers use in a one car garage (34m <sup>3</sup> ) under	typical ventilation
[ConsOC11] Covers use in room size of:	34m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.02hr/event
<b>PC4_n: Anti-freeze and de-icing products-Pouring into radiator</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	10%
[ConsOC2] For each use event, covers use amounts up to:	2000g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428cm <sup>2</sup>
[ConsOC10] Covers use in a one car garage (34m <sup>3</sup> ) under	typical ventilation
[ConsOC11] Covers use in room size of:	34m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.17hr/event
<b>PC4_n: Anti-freeze and de-icing products-Lock de-icer</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	4g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	214.40cm <sup>2</sup>
[ConsOC10] Covers use in a one car garage (34m <sup>3</sup> ) under	typical ventilation
[ConsOC11] Covers use in room size of:	34m <sup>3</sup>



## White Spirit Solvent

[ConsOC14] For each use event, covers exposure up to:	0.25hr/event
<b>PC8_n: Biocidal products (excipient use only for solvent products)-Laundry and dish washing products</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	5%
[ConsOC2] For each use event, covers use amounts up to:	15g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	857.50cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.50hr/event
<b>PC8_n: Biocidal products (excipient use only for solvent products)-Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners )</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	5%
[ConsOC2] For each use event, covers use amounts up to:	27g
[ConsOC3] Covers use up to:	128 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	857.50cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.33hr/event
<b>PC8_n: Biocidal products (excipient use only for solvent products)-Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	15%
[ConsOC2] For each use event, covers use amounts up to:	35g
[ConsOC3] Covers use up to:	128 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.17hr/event
<b>PC9a:Coatings and paints, fillers putties, thinners-Waterborne latex wall paint</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	1.5%
[ConsOC2] For each use event, covers use amounts up to:	2760g
[ConsOC3] Covers use up to:	4 days/year

## White Spirit Solvent

[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428.75cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.20hr/event
<b>PC9a:Coatings and paints, fillers putties, thinners-Solvent rich, high solid, waterborne paint</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	27.5%
[ConsOC2] For each use event, covers use amounts up to:	744g
[ConsOC3] Covers use up to:	6 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428.75cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.20hr/event
<b>PC9a:Coatings and paints, fillers putties, thinners-Aerosol spray can</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	215g
[ConsOC3] Covers use up to:	2 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC10] Covers use in a one car garage (34m <sup>3</sup> ) under typical ventilation	
[ConsOC11] Covers use in room size of:	34m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.33hr/event
<b>PC9a:Coatings and paints, fillers putties, thinners-Removers (paint-, glue-, wallpaper-, sealant-remover)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	491g
[ConsOC3] Covers use up to:	3 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	857.50cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.00hr/event
<b>PC9b:Fillers, putties, plasters, modelling clay-Fillers and putty</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	2%
[ConsOC2] For each use event, covers use amounts up	85g

## White Spirit Solvent

to:	
[ConsOC3] Covers use up to:	12 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	35.73cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	4.00hr/event
<b>PC9b: Fillers, putties, plasters, modelling clay-Plasters and floor equalizers</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	2%
[ConsOC2] For each use event, covers use amounts up to:	13800g
[ConsOC3] Covers use up to:	12 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	857.50cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	2.00hr/event
<b>PC9b: Fillers, putties, plasters, modelling clay-Modelling clay</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	1%
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	254.40cm <sup>2</sup>
[ConsOC13] For each use event, assumes swallowed amount of:	1g
<b>PC9c: Finger paints-Finger paints</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	254.40cm <sup>2</sup>
[ConsOC13] For each use event, assumes swallowed amount of:	1.35g
<b>PC24: Lubricants, greases, and release products-Liquids</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	100%
[ConsOC2] For each use event, covers use amounts up to:	2200g
[ConsOC3] Covers use up to:	4 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	468cm <sup>2</sup>

## White Spirit Solvent

[ConsOC10] Covers use in a one car garage (34m <sup>3</sup> ) under typical ventilation	
[ConsOC11] Covers use in room size of:	34m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.17hr/event
<b>PC24: Lubricants, greases, and release products-Pastes</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	20%
[ConsOC2] For each use event, covers use amounts up to:	34g
[ConsOC3] Covers use up to:	10 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	468cm <sup>2</sup>
<b>PC24: Lubricants, greases, and release products-Sprays</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	50%
[ConsOC2] For each use event, covers use amounts up to:	73g
[ConsOC3] Covers use up to:	6 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428.75cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.17hr/event
<b>PC35: Washing and cleaning products (including solvent based products)-Laundry and dish washing products</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	5%
[ConsOC2] For each use event, covers use amounts up to:	15g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	875.50cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.50hr/event
<b>PC35: Washing and cleaning products (including solvent based products)-Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	5%
[ConsOC2] For each use event, covers use amounts up to:	27g
[ConsOC3] Covers use up to:	128 days/year
[ConsOC4] Covers use up to:	1 time/on day of use

## White Spirit Solvent

[ConsOC5] Covers skin contact area up to:	857.50cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.33hr/event
<b>PC35: Washing and cleaning products (including solvent based products)-Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	15%
[ConsOC2] For each use event, covers use amounts up to:	35g
[ConsOC3] Covers use up to:	128 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	0.17hr/event
<b>PC38_n: Welding and soldering products, flux products</b>	
[ConsOC1] Unless otherwise stated, covers concentrations up to:	20%
[ConsOC2] For each use event, covers use amounts up to:	12g
[ConsOC3] Covers use up to:	365 days/year
[ConsOC4] Covers use up to:	1 time/on day of use
[ConsOC5] Covers skin contact area up to:	428cm <sup>2</sup>
[ConsOC8] Covers use under	typical household ventilation
[ConsOC11] Covers use in room size of:	20m <sup>3</sup>
[ConsOC14] For each use event, covers exposure up to:	1.00hr/event
No specific RMMs identified beyond those OCs stated.	
<b><u>Section 2.2: Control of environmental exposure</u></b>	
<b>Product characteristics</b>	Substance is complex UVCB [PrC3].
	Predominantly hydrophobic [PrC4a].

## White Spirit Solvent

<b>Amounts used</b>	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	5.0E+1
Fraction of Regional tonnage used locally:	0.0005
Annual site tonnage (tonnes/year):	2.5E-2
Maximum daily site tonnage (kg/day):	6.8E-2
<b>Frequency and duration of use</b>	
[FD2] Continuous release.	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions of use affecting environmental exposure</b>	
Release fraction to air from wide dispersive use (regional only):	0.95
Release fraction to wastewater from wide dispersive use:	0.025
Release fraction to soil from wide dispersive use (regional only):	0.025
<b>Conditions and measures related to municipal sewage treatment plant</b>	
Not applicable as there is no release to wastewater [STP1]	
Estimated substance removal from wastewater via domestic sewage treatment (%):	93.7
Maximum allowable site tonnage ( $M_{Safe}$ ) based on release following total wastewater treatment removal (kg/d):	6.3E+1
Assumed domestic sewage treatment plant flow ( $m^3/d$ ):	2000
<b>Conditions and measures related to external treatment of waste for disposal</b>	External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3].
<b>Conditions and measures related to external recovery of waste</b>	External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].
<b>Other environmental control measures additional to above</b>	

### SECTION 3: EXPOSURE ESTIMATION

#### 3.1. Health

The ECETOC TRA tool has been used to estimate consumer exposures, unless otherwise indicated [G30]

#### 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

**SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**

**4.1. Health**

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

**4.2. Environment**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Further details on scaling and control technologies are provided in CEFIC - SpERC factsheet.