Product	DIESEL FUELS EURODIESEL, EURODIESEL CLASS, EURODIESEL CLASS PLUS, EURODIESEL B7, EURODIESEL B7 CLASS, EURODIESEL B7 CLASS PLUS, EURODIESEL ARKTIK, EURODIESEL ARKTIK CLASS PLUS, EURODIESEL BLUE, EURODIESEL B7 ADT, EURODIESEL B7 PERFORMANCE	Date: Edition:	2018/15/11 14

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

1.1. Product identifier

- Trade name: **DIESEL FUELS**
EURODIESEL, EURODIESEL CLASS, EURODIESEL CLASS PLUS, EURODIESEL B7, EURODIESEL B7 CLASS, EURODIESEL B7 CLASS PLUS, EURODIESEL ARKTIK, EURODIESEL ARKTIK CLASS PLUS, EURODIESEL BLUE, EURODIESEL B7 ADT, EURODIESEL B7 PERFORMANCE

- Chemical name: -

- Index no.: -

- EC no.: -

- CAS no.: -

- Registration No.: -

- Product code: 1000299, 1000513, 1002193, 1000628, 1000629, 1002223, 1002300, 1002301, 1000340, 1002499, 1002507

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

- Relevant identified uses: **Industrial:** Manufacture of Substances, Distribution of substances, Formulation & (Re)Packing of substances, Use as intermediate, Use as a fuel

Professional: Use as a fuel

Consumer: Use as a fuel

- Uses advised against: The uses that are in the list above are relevant. Other uses are not recommended unless an assessment that proves that the related risks are controlled has been conducted before starting that use.

1.3. Details of the supplier of the safety data sheet

- Manufacturer/supplier: **INA-Industrija nafte, d.d.**

Address: Av. Većeslava Holjevca 10
pp 555, 10002 Zagreb, HRVATSKA

Phone: 00-385-1-6450-842 / 00-385-1-6451-075 (24 h)

Fax: 00-385-1-6452-050 **e-mail:** sds@ina.hr

- Responsible person: **SD & HSE**
Mirela Mavrinac, B.Sc. Tel. 00-385-1-6450-803
Hrvoje Raukar, B.Sc.

1.4. Emergency Telephone Number

- Emergency Service Telephone Number: **112**

National Protection and Rescue Directorate	00-385-1-3650-011
Nehajska 5, 10000 Zagreb	00-385-1-3650-084
e-mail: info@duzs.hr	00-385-1-3650-082
	00-385-1-3650-083
- Medical Information Telephone Number:	**00-385-1-23-48-342**

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

2.1.1. Classification according to Regulation (EC) No 1272/2008 (CLP/GHS):

Flam. Liquid 3: H226

Asp. Tox. 1: H304

Skin Irrit. 2: H315

Acute Tox 4: H332

Carc.2: H351

STOT (RE): H373 (thymus, liver, bone marrow)

Aquatic Chronic 2: H411

Full text of H-phrases: see section 16.

2.2. Label elements

2.2.1. Labelling according to Regulation (EC) No 1272/2008 (CLP/GHS)

Hazard pictograms:

GHS02 GHS08 GHS09 GHS07

Signal word:

Hazard statements (H):	H226	Flammable liquid and vapour.
	H304	May be fatal if swallowed and enters airways.
	H315	Causes skin irritation.
	H332	Harmful if inhaled.
	H351	Suspected of causing cancer.
	H373	May cause damage to thymus, liver, bone marrow through prolonged or repeated exposure.

	H411	Toxic to aquatic life with long lasting effects.
Precautionary statements (P):	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.

2.3. Other hazards

No data.

3. COMPOSITION / INFORMATION ON INGREDIENTS

-Substance:			**Mixture:**	**X**	

- Components contributing to product hazardousness:

Substance name	Substance identification			[%]	Classification according to Regulation (EC) No 1272/2008 (CLP/GHS)
	CAS no.	EC no.	Registration no. (REACH)		
Fuels, diesel	68334-30-5	269-822-7	01-2119484664-27-0114	≤100	Flam. Liquid 3: H226 Asp. Tox. 1: H304 Skin Irrit. 2: H315 Acute Tox 4: H332 Carc.2: H351 STOT Rep.Exp.2: H373 (thymus, liver, bone marrow) Aquatic Chronic 2: H411
Fatty acids C16-18 and C18-unsaturated, methyl esters	67762-38-3	267-015-4	01-2119471664-32-xxxx	≤7	Not classified.

4. FIRST AID MEASURES

4.1 Description of first aid measures

- general information: In case of ingestion, always assume aspiration into the lungs has occurred, accompanied by the pulmonary oedema hazard. Show the label on the packaging or the SDS.

- after inhalation: Remove the person from dangerous area to fresh air.
  In case of headache, dizziness, nausea and permanent complaints immediately seek medical attention.
  In case of fainting transport in lateral position to hospital, paying attention to the free passing of the air thorough the respiratory tract.
  In case of difficulty in breathing or respiratory arrest, open airways, initiate resuscitation (heart massage and artificial respiration) and immediately seek medical attention.
- after skin contact: Remove soaked clothes and shoes and flush the sites of contact thoroughly with water and soap for at least 15 to 20 minutes. In case redness occurs seek medical advice.
- after eye contact: Remove contact lenses and flush the eyes with running water for at least 15 minutes. In case of irritation, blurred vision and swelling immediately seek medical attention.
- after ingestion: Do NOT induce vomiting! Do not give anything by mouth. Always assume aspiration into the lungs has occurred. If vomiting occurs, keep the head below the level of hips in order to prevent penetration into the lungs. Immediately seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

- after inhalation: Longer inhalation of fumes can cause a sense of intoxication, headache, nausea, vomiting.
- after skin contact: Redness, dermatitis.
- after eye contact: Irritating effect with possible occurrence of eye redness.
- after ingestion: May cause lung damage if swallowed. Danger of pulmonary oedema due to aspiration in the lungs.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Only qualified medical personnel should administer oxygen.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

- SUITABLE: Air foam, powder, CO_2, water mist.
- UNSUITABLE: Water jet.

- Firefighting measures for special hazards: Eliminate all sources of ignition and call the fire brigade. Pay special attention to risk of explosive vapour-air mixture formation at temperatures above the flash point.

- Special firefighting measures: Use of water mist and water spray for cooling the surfaces exposed to heat and for protection of persons. Only persons trained in fire-fighting may use the water spray (sprayed water).

- Special fire fighter protective equipment:	Wear protective clothing for firefighters (intervention suit) in accordance with HRN EN 469 and a self-contained open-circuit compressed air breathing apparatus in accordance with HRN EN 137.
5.2 Special hazards arising from the substance or mixture:	Vapours are heavier than air and may settle to ground level and in dents; they may spread away from the site of accident and cause explosion and fire.
5.3 Advice for firefighters:	No data available.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:	Ventilate thoroughly the premises at risk. Display a visible sign prohibiting entrance, use of open flame and sparking devices. Do not smoke. Stand upwind from the spill site. Use personal protection equipment listed in Section 8.
6.2 Environmental precautions:	Mark out the contaminated area with signs and prevent leaks and spills into watercourses, channels, drainage systems and soil by digging a protective ditch, setting up partitions made of bags of dry sand, soil or clay. Ensure good ventilation. In case of larger spills notify the Emergency Service at the number 112.
6.3 Methods for cleaning-up and recovery:	Pump the product from the damaged tank into an empty tank - container with the pump designed for use in a potentially explosive atmosphere. Absorb the remainders with absorbents (sawdust, sand, mineral adsorbents or other inert materials). Store the waste material and contaminated surface layer of soil that was removed in tightly closed containers in well-ventilated premises until disposal. Hand over for disposal to legal entities for hazardous waste disposal, authorized by the Ministry in charge of environmental protection.
- Additional warnings:	In case of traffic accident, properly ground the tank truck, mark the accident area and call the responsible person and the expert service in charge of taking care of the consequences of the accident.
6.4 Reference to other sections:	See sections 8 and 13.

7. HANDLING AND STORAGE

- Handling

7.1 Precautions for safe handling: Eliminate all possible sources of ignition. Decant only in areas properly designed for the purpose according to regulations. Use functioning equipment and devices and follow technical safety measures in accordance with the training received.

Take special care of connection points to prevent possible leaks.

Follow occupational safety and fire safety measures.

7.1.1 Safe handling advice: Do not smoke, eat or drink in a room where this product is handled. Avoid inhalation and contact with skin and eyes. Use personal protective equipment listed in Section 8.

7.1.2 Advice on general occupational hygiene:

7.2 Conditions for safe storage, including any incompatibilities

- SUITABLE: Properly built and equipped containers. Make sure that receiving tank farms are below self-supporting tanks.
- TO BE AVOIDED: Avoid storing with other chemicals, especially flammable ones (oxidants, acids). Do not use sparking tools and equipment in storage area.

- Packaging materials

- RECOMMENDED: Original as made by the tank/container manufacturer with valid certification.
- NOT SUITABLE: Any other.

7.3 Specific end use(s):

No data available.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

Hazardous substance (CAS No.)	Occupational exposure limit values/short term values (OEL/STEL)		Biological limit values
	ppm	mg/m^3	
No data available	-	-	-

- Monitoring procedures: No data available.

8.2. Exposure controls

- Summary of risk management measures: See Section 7.

8.2.1 Occupational exposure controls

- Description of operating procedure and technological control:

Make sure work areas are well-ventilated. Provide a decontamination sprayer for the eyes and face. Adopt personal hygiene measures: wash the hands after contact with the fuel, especially before eating, drinking and/or smoking. Regularly maintain and wash the clothing and equipment after use to remove dirt. Properly dispose of the contaminated clothing and equipment. Maintain cleanliness in accordance with good practice. Educate the employees on the hazards and control measures. Test and maintain the equipment used when handling the fuel: for example, personal protective equipment, ventilation system. Do not swallow. If swallowed, seek medical attention.

8.2.2 Personal protective equipment

Personal protective equipment shall comply with national regulations and international standards.

- respiratory tract protection:	If the concentration is higher than permitted, use a protective half mask or full face mask (HRN EN 136/AC:2006) with a combined filter for organic gases/vapours (filter type A-P, boiling point>65 °C), a threaded connection complying with the HRN EN 14387 and HRN EN 143 standards (boiling point> 65 °C). During the fire, use a self-sustained open-circuit compressed-air breathing apparatus (HRN EN 137).
- hand protection:	Personal hand hygiene is the most important element. The gloves shall only be worn on clean hands. After using the gloves, the hands shall be washed and dried. The contaminated gloves shall not be used. For continuous use, wear protective gloves made of stable and impervious material such as nitrile rubber or Viton (HRN EN 374, breakthrough time> 240 minutes).
- eye protection:	Protective goggles or a visor at lower concentrations (HRN EN 166), protective mask at higher concentrations.
- skin and body protection:	Use chemical resistant gloves, clothing and apron (where there is a risk of splashing).
- Special hygienic and safety precautions:	Maintain the prescribed hygiene standards for working with hazardous substances. Remove contaminated clothing and footwear. Inspect the equipment and devices regularly and maintain with running water. Do not smoke, eat, and drink when handling the product. Wash hands before breaks and at the end of work.

8.2.3 Environmental exposure controls

- Summary of risk management measures: No data available.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

- state: liquid

- colour:		yellowish (Eurodiesel, Eurodiesel Class, Eurodiesel Class Plus, Eurodiesel B7, Eurodiesel B7 Class, Eurodiesel B7 Class Plus, Eurodiesel Arktik, Eurodiesel Arktik Class Plus, Eurodiesel, Eurodiesel B7 ADT and Eurodiesel B7 Performance), green or blue (Eurodiesel blue)
- odour:		very weak
- odour threshold:		No data available.
- pH value (indicate conc. and temp.):		Not applicable.
- Melting point/freezing point:	°C	No data.
- boiling point/boiling range:	°C	160 - 380
- flash point:	°C	>55
- Evaporation rate:		No data.
- flammability (solid, gas):		Need to be heated to ignite.
- explosive limits:	vol. %	0,6 - 6,5 (from literature)
- vapour pressure:	kPa	0,4
- vapour density at 15°C:	kg/m^3	No data.
- relative density:		0,820 – 0,845
- density at 15°C:	kg/m^3	820,0 - 845,0
- solubility (indicate solvent):	g/L	No data.
- Solubility in water:	g/L	No data.
- partition coefficient n-octanol / water	logPow	>3,3 (from literature)
- auto ignition temperature:	°C	250 - 460 (from literature)
- disintegration temperature:	°C	No data.
- viscosity (kinematic) at xx °C:	mm^2/s	2,0 - 4,5
- oxidizing properties:		Not applicable.
- conductivity:	pS/m	70 - 290

9.2 Other information:

No data.

10. STABILITY AND REACTIVITY

10.1 Reactivity:	Stable under recommended handling and storage conditions.
10.2 Chemical stability:	Stable under recommended handling and storage conditions.
10.3 Possibility of hazardous reactions:	Potentially hazardous reactions are not known.
10.4 Conditions to avoid:	Sources of heat, flame, spark.
10.5 Incompatible materials:	Strong oxidants.

10.6 Hazardous decomposition products: None in standard operating conditions and in proper storage; however thermal decomposition may generate harmful gases: (including carbon-monoxide, CO), sulphur and nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

- Acute toxicity

- oral (LD_{50}): >5000 mg/kg $_{body\ mass}$ (rat)
- inhalation (LC_{50}): ≥4,1 mg/l (rat).
- dermal (LD_{50}): >5 ml/kg $_{body\ mass}$ (rabbit).

- Irritation/Corrosion

- skin: Redness, dermatitis (H 315).
- eyes: Irritating effect; may cause redness.
- respiratory tract: May cause lung damage if ingested.

- Sensitisation

- skin: Sensitive people may experience redness and dermatitis.
- respiratory tract: No data available.

- Aspiration hazard:

- Other classic effects: (e.g. unconsciousness, particularly toxic metabolites, etc.): May be fatal if swallowed and enters airways. (H304).

- Permanent effects due to acute or chronic exposure: Long-term inhalation of vaporous causes a sense of intoxication, headache, urge to vomiting, fainting.

- Special effects

No data available.

- mutagenicity: No data available.
- carcinogenicity: Suspected of causing cancer (H351).
- fertility decrease: No data available.
- harmful effect on unborn child: No data available.
- toxicity to reproduction: No data available.
- other (e.g. endocrine disruptors): No data available.
- STOT (SE): No data available.
- STOT (RE): May cause damage to thymus, liver, bone marrow through prolonged or repeated exposure. (H373)

- Prohibitions and restrictions: No data available.

- Other: No data available.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

- to aquatic organisms: EL_{50}= 56 - 94 mg/L (96h, *Cyprinodon variegatus variegatus*)
  EL_{50}= 3,5 – 4,4 ppm (24-96h, *Palaemonetes pugio*)
  LL_{50}= 2 mg/l (*Daphnia magna*)
- to ground organisms: No data available.
- to plants and land animals: No data available.

12.2. Persistence and degradability

- biodegradation: Not readily biodegradable.
- other degradation processes: Some components evaporate and degrade when exposed to light.
- degradation in wastewater: No data available.

12.3. Bioaccumulative potential

- bio-concentration factor (BCF): log K_{ow} above 4,0

12.4. Mobility in soil **Method:** No data available.

- Known or predicted distribution in environmental compartments: No data available.
- surface tension: No data available.
- absorption/desorption: No data available.
- other physical and chemical properties: See Section 9.

12.5. Results of PBT and vPvB assessment

- data from chemical safety report: No data available.

12.6. Other adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods: Waste shall be handed over to the person authorised for waste collection, disposal or recovery. If possible, the waste shall be recovered.

- Waste codes: **13 07 01***

- Waste from residues: There is no classic waste from this product except in case of unintentional release. For such cases see Section 6.

- Contaminated packaging: Not applicable.

- Relevant provisions: Act on Sustainable Waste Management, Regulation on waste catalogue, Ordinance on waste management.

14. TRANSPORT INFORMATION

14.1 UN number: **1202**

14.2 UN proper shipping name: Gas oil or diesel fuel or fuel oil, light

14.3 Transport hazard class(es)

ADR/RID/ADN/ICAO/IATA: 3

IMDG: 3

14.4 Packing group

ADR/RID/ADN/IMDG/ICAO/IATA: III

14.5 Environmental hazards

ADR, RID, ADN, ICAO/IATA: toxic to aquatic life with long lasting effects

IMDG: maritime pollutant

14.6 Special precautions for user

ADR

Transport category: 3

Vehicle for tank carriage:

FL (flash point not greater than 61 °C)

AT (flash point from 61°C but not larger than 100 °C)

Tank code:

LGBF (flash point not greater than 61 °C)

LGBV (flash point from 61°C but not larger than 100 °C)

Tunnel restriction code: (D/E)

Label: 3

Classification code: F1

Hazard identification: 30

Special provisions: 640 K-L-M, 664, S2

RID

Transport category: 3

Tank code:

LGBF (flash point not greater than 61 °C)

LGBV (flash point from 61°C but not larger than 100 °C)

Label: 3

Classification code: F1

Hazard identification: 30

Special provisions: 640 K-L-M, W12

ADN

Label: 3

Additional requirements/Remarks: *see 3.2.3.3 ADN

Dangers: 3+(N1,N2,N3,CMR,F,S)

IMDG

Subsidiary risk: maritime pollutant

Group of the cargo: category A

Special provisions: 363

Equipment required: PP
EmS: F-E, S-E
Classification code: F1
Segregation group: category A
Carriage permitted: /
Type of tank vessel: N/2
Anti-explosion protection required: no
Maximum degree of filling in %: 97

ICAO

Label: 3
Cargo IMP code: RFL
Passenger and cargo aircraft: YES
EQ: E1 ; Ltd Qty: 10L; Pkg Inst: Y344
Max Net Qty/Pkg: 60L ; Pkg Inst: 355
Cargo aircraft: YES
Pkg Inst: 366; Max Net Qty/Pkg: 220L
ERG code:3L

14.7 Transport in bulk condition according to MARPOL Convention, Annex II and IBC Codex

Trade name:	-
Pollution category (according to MARPOL, Annex II):	-
Vessel type (according to IBC Code):	-
Special and operative requirements (according to IBC Code):	-

15. REGULATORY INFORMATION

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

- Applicable EU regulations: EU Regulation No. 1906/2007 and No. 1272/2008 of the European Parliament and the Council; Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH); EU Regulation No. 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer; EU Regulation No 689/2008 of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals; EU Regulation No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants; Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives

- Applicable national regulations: Chemicals Act; Ordinance on workers protection to dangerous chemicals exposure during work, exposure limit values and biological limit values; Act on Sustainable Waste Management, Regulation on waste catalogue, Ordinance on waste management.

- Authorization information: -

- Restriction information: -

- Chemical Safety Assessment carried out (CSA): YES X NO

16. OTHER INFORMATION

Revision indicators

Section:	**Subject of change:**

Full text of H- phrases, EUH- and P-phrases

1	Product names and product codes were changed.
9	Product names were updated.

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS number	Chemical Abstract Service number

CLP	Classification, Labelling and Packaging of substances and mixtures
CSA	Chemical Safety Assessment
CSR	Chemical Safety Report
EC number	European Community number for identification of chemical substances commercially available in the EU
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code transport
LC50	Lethal concentration for 50% of tested organisms
LD50	Lethal concentration for 50% of tested organisms (medium lethal concentration)
OIN	Oil industry notes
PBT	Persistent, bioaccumulative and toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
STOT (SE)	Specific Target Organ Toxicity (Single Exposure)
STOT (RE)	Specific Target Organ Toxicity (Repeated Exposure)
UVCB	Chemical Substances of Unknown or Variable Composition, Complex Reaction Products and Biological Materials
vPvB	Very persistent and very bioaccumulative

Statement:

This SDS is in compliance with the EU Regulation No. 1907/2006 and No. 1272/2008 of the European Parliament and the Council. It contains important user health and safety and environmental protection information. The information provided herein is not a substitute for any specification of quality and should not be deemed as a guarantee of the adequacy and applicability of this product for any purpose whatsoever. All information provided herein is based on our current knowledge and compliant with applicable legal regulations. The user is responsible for adherence to relevant legal regulations.

Data source:

1. www.hzt.hr
2. http://echa.europa.eu/hr
3. Hazard classification and labelling of petroleum substances in the EEA, Concawe 2015.
4. Handbook – Identified Uses of Petroleum Substances, Concawe, July 2018

APPENDIX: EXPOSURE SCENARIOS ACCORDING TO CHEMICAL SAFETY REPORT

9.1 Identified Use Description and Exposure Scenario Number Key

IU	Category	Identified Use Name	Sector	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Article Category (AC)	Environmental Release Category (ERC)	Specific Environmental Release Category (SpERC)
1	Vacuum gas oils, hydrocracked gas oils and distillate fuels	01 – Manufacture of Substance	Industrial	3, 8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	NA	1	ESVOC SpERC 1.1.v1
2	Vacuum gas oils, hydrocracked gas oils and distillate fuels	01b – Use of Substance as Intermediate	Industrial	3, 8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	NA	6a	ESVOC SpERC 6.1a.v1
3	Vacuum gas oils, hydrocracked gas oils and distillate fuels	01a – Distribution of Substance	Industrial	3	NA	1, 2, 3, 4, 8a, 8b, 9, 15	NA	4, 5, 6a, 6b, 6c, 6d, 7	ESVOC SpERC 1.1b.v1
4	Vacuum gas oils, hydrocracked gas oils and distillate fuels	02 – Formulation & (Re)packing of Substances and Mixtures	Industrial	3, 10	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	NA	2	ESVOC SpERC 2.2.v1
15	Vacuum gas oils, hydrocracked gas oils and distillate fuels	12a – Use as a Fuel: Industrial	Industrial	3	NA	1, 2, 3, 8a, 8b, 16	NA	7	ESVOC SpERC 7.12a.v1

IU	Category	Identified Use Name	Sector	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Article Category (AC)	Environmental Release Category (ERC)	Specific Environmental Release Category (SpERC)
16	Vacuum gas oils, hydrocracked gas oils and distillate fuels	12b – Use as a Fuel: Professional	Professional	22	NA	1, 2, 3, 8a, 8b, 16	NA	9a, 9b	ESVOC SpERC 9.12b.v1
17	Vacuum gas oils, hydrocracked gas oils and distillate fuels	12c – Use as a Fuel: Consumer	Consumer	21	13	NA	NA	9a, 9b	ESVOC SpERC 9.12c.v1

1. Manufacture of Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411 – Industrial

Section 1 Exposure Scenario Title Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411	
Title	
Manufacture of Substance	
Use Descriptor	
Sector(s) of Use	3, 8, 9
Process Categories	1, 2, 3, 4, 8a, 8b, 15
Environmental Release Categories	1
Specific Environmental Release Category	ESVOC SpERC 1.1.v1
Processes, tasks, activities covered	
Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling / recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid With potential for aerosol generation [CS138]
Vapour pressure (kPa)	Liquid, vapour pressure <0.5 kPa at STP. OC3.
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) G13
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature). OC7. Assumes a good basic standard of occupational hygiene is implemented G1.
Contributing Scenarios	**Specific Risk Management Measures and Operating Conditions**
General measures applicable to all activities CS135	Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions. G25
General measures (skin irritants) G19	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin effects that may develop. E3
General exposures (Closed systems) CS15	Handle substance within a closed system E47

General exposures (Open systems) CS16	Wear suitable gloves tested to EN374 PPE15
Process Sampling CS2	No other specific measures identified EI20
Bulk closed loading and unloading CS501	Handle substance within a closed system E47 Wear suitable gloves tested to EN374 PPE15
Bulk open loading and unloading CS503	Wear suitable gloves tested to EN374 PPE15
Equipment cleaning and maintenance CS39	Drain down system prior to equipment break-in or maintenance. E65. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. PPE16
Laboratory activities CS36	No other specific measures identified EI20
Bulk storage CS85	Store substance within a closed system. E84

Section 2.2 Control of environmental exposure

Product characteristics	
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	2.8e7
Fraction of Regional tonnage used locally	0.021
Annual site tonnage (tonnes/year)	6.0e5
Maximum daily site tonnage (kg/day)	2.0e6
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
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
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used [TCS1].	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by freshwater sediment [TCR1b]. Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR9].	
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 ≥ (%)	90.3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation measures to prevent/limit release from site	
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].	
Conditions and measures related to municipal sewage treatment plant	

Estimated substance removal from wastewater via domestic sewage treatment (%)	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94.1
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/d)	3.3e6
Assumed domestic sewage treatment plant flow (m^3/d)	10000
Conditions and measures related to external treatment of waste for disposal	
During manufacturing no waste of the substance is generated to treat [ETW4].	
Conditions and measures related to external recovery of waste	
During manufacturing no waste of the substance is generated to recover [ERW2].	
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. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. G32. Available hazard data do not support the need for a DNEL to be established for other health effects. G36. Risk Management Measures are based on qualitative risk characterisation. G37.	

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 SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). Scaled assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file attached to IUCLID section 13 – "Site-Specific Production" worksheet [DSU6]. For refinery sites where scaling revealed a condition of unsafe use (i.e., RCRs > 1), a site-specific chemical safety assessment was required [DSU8]. Taking into account the findings of the air- monitoring evaluation on benzene included as the Tier 2 analysis in the Low Boiling Point Naphtha category, the default "Air Removal Efficiency" of 90 % included in the SPERC has been shown to be over-conservative and that 95 % efficiency can safely be claimed in a Tier II analysis. On this basis, the Tier 2 analysis demonstrates that no refineries have RCRs>1 (see PETRORISK file in IUCLID section 13 – "Tier 2 Site Specific Production worksheet").

2. Use of Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411as Intermediate – Industrial

Section 1 Exposure Scenario Title Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411	
Title	
Use as Substance as Intermediate	
Use Descriptor	
Sector(s) of Use	3, 8, 9
Process Categories	1, 2, 3, 4, 8a, 8b, 15
Environmental Release Categories	6a
Specific Environmental Release Category	ESVOC SpERC 6.1a.v1
Processes, tasks, activities covered	
Use of substance as an intermediate. Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid With potential for aerosol generation [CS138]
Vapour pressure (kPa)	Liquid, vapour pressure <0.5 kPa at STP. OC3.
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) G13
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature). OC7. Assumes a good basic standard of occupational hygiene is implemented G1.
Contributing Scenarios	**Specific Risk Management Measures and Operating Conditions**
General measures applicable to all activities CS135	Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions. G25
General measures (skin irritants) G19	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin effects that may develop. E3
General exposures (Closed systems) CS15	Handle substance within a closed system E47

General exposures (Open systems) CS16	Wear suitable gloves tested to EN374 PPE15
Process Sampling CS2	No other specific measures identified EI20
Bulk closed loading and unloading CS501	Handle substance within a closed system E47 Wear suitable gloves tested to EN374 PPE15
Bulk open loading and unloading CS503	Wear suitable gloves tested to EN374 PPE15
Equipment cleaning and maintenance CS39	Drain down system prior to equipment break-in or maintenance. E65. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. PPE16
Laboratory activities CS36	No other specific measures identified EI20
Bulk storage CS85	Store substance within a closed system. E84

Section 2.2 Control of environmental exposure

Product characteristics	
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	3.5e5
Fraction of Regional tonnage used locally	0.043
Annual site tonnage (tonnes/year)	1.5e4
Maximum daily site tonnage (kg/day)	5.0e4
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
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)	3.0e-5
Release fraction to soil from process (initial release prior to RMM)	0.001
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used [TCS1].	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by freshwater sediment [TCR1b]. Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR9].	
Treat air emission to provide a typical removal efficiency of (%)	80
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥(%)	51.6
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥(%)	0
Organisation measures to prevent/limit release from site	
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].	
Conditions and measures related to municipal sewage treatment plant	

Estimated substance removal from wastewater via domestic sewage treatment (%)	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94.1
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/d)	4.1e5
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
This substance is consumed during use and no waste of the substance is generated to treat [ETW5].	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of the substance is generated to recover [ERW3].	
Additional information on the basis for the allocation of the identified OCs and RMMs is contained in PETRORISK file.	
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. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. G32. Available hazard data do not support the need for a DNEL to be established for other health effects. G36. Risk Management Measures are based on qualitative risk characterisation. G37.
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 SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

3. Distribution of Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411– Industrial

Section 1 Exposure Scenario Title Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411	
Title	
Distribution of Substance	
Use Descriptor	
Sector(s) of Use	3
Process Categories	4, 8a, 8b, 9, 15
Environmental Release Categories	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7
Specific Environmental Release Category	ESVOC SpERC 1.1b.v1
Processes, tasks, activities covered	
Bulk 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.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid With potential for aerosol generation [CS138]
Vapour pressure (kPa)	Liquid, vapour pressure <0.5 kPa at STP. OC3.
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) G13
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. G15. Assumes a good basic standard of occupational hygiene is implemented G1.
Contributing Scenarios	**Specific Risk Management Measures and Operating Conditions**
General measures applicable to all activities CS135	Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions. G25
General measures (skin irritants) G19	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin effects that may develop. E3
General exposures (Closed systems) CS15	Handle substance within a closed system E47

General exposures (Open systems) CS16	Wear suitable gloves tested to EN374 PPE15
Process sampling CS2	No other specific measures identified EI20
Laboratory activities CS36	No other specific measures identified EI20
Bulk closed loading and unloading CS501	Handle substance within a closed system E47 Wear suitable gloves tested to EN374 PPE15
Bulk open loading and unloading CS503	Wear suitable gloves tested to EN374 PPE15
Drum and small pack filling CS6	Wear suitable gloves tested to EN374 PPE15
Equipment cleaning and maintenance CS39	Drain down system prior to equipment break-in or maintenance. E65. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. PPE16
Storage CS67	Handle substance within a closed system. E84

Section 2.2 Control of environmental exposure

Product characteristics	
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tones/year)	2.8e7
Fraction of Regional tonnage used locally	0.002
Annual site tonnage (tonnes/year)	5.6e4
Maximum daily site tonnage (kg/day)	1.9e5
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
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
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used [TCS1].	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by human via indirect exposure (primarily ingestion) [TCR1j] Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14].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 ≥(%)	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥(%)	0
Organisation measures to prevent/limit release from site	
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].	

Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94.1
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/d)	2.9e6
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable 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. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. G32. Available hazard data do not support the need for a DNEL to be established for other health effects. G36. Risk Management Measures are based on qualitative risk characterisation. G37.
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 SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

4. Formulation & (Re)packing of Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411 – Industrial

Section 1 Exposure Scenario Title Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411	
Title	
Formulation & (Re)packing of Substances and Mixtures	
Use Descriptor	
Sector(s) of Use	3, 10
Process Categories	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15
Environmental Release Categories	2
Specific Environmental Release Category	ESVOC SpERC 2.2.v1
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, pelletization, extrusion, large and small scale packing, maintenance, sampling and associated laboratory activities	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid With potential for aerosol generation [CS138]
Vapour pressure (kPa)	Liquid, vapour pressure <0.5 kPa at STP. OC3.
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) G13
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. G15. Assumes a good basic standard of occupational hygiene is implemented G1.
Contributing Scenarios	**Specific Risk Management Measures and Operating Conditions**
General measures applicable to all activities CS135	Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions. G25
General measures (skin irritants) G19	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin effects that may develop. E3
General exposures (closed systems) CS15	Handle substance within a closed system E47
General exposures (open systems) CS16	Wear suitable gloves tested to EN374 PPE15

Batch processes at elevated temperatures [CS136]	Provide extract ventilation to points where emissions occur E54
Process sampling CS2	No other specific measures identified EI20
Drum and batch transfers CS8	Use drum pumps or carefully pour from container E64 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training PPE16
Bulk transfers CS14	Handle substance within a closed system E47 Wear suitable gloves tested to EN374 PPE15
Mixing operations (open systems) CS30	Provide extract ventilation to points where emissions occur E54 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training PPE16
Production or preparation or articles by tabletting, compression, extrusion or pelletisation CS100	Wear suitable gloves tested to EN374 PPE15
Drum and small package filling CS8	Wear suitable gloves tested to EN374 PPE15
Laboratory activities CS36	No other specific measures identified EI20
Equipment clean down and maintenance CS39	Drain down system prior to equipment break-in or maintenance. E65. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. PPE16
Storage CS67	Store substance within a closed system. E84
Section 2.2 Control of environmental exposure	
Product characteristics	
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	2.8e7
Fraction of Regional tonnage used locally	0.0011
Annual site tonnage (tonnes/year)	3.0e4
Maximum daily site tonnage (kg/day)	1.0e5
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	300

Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
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
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used [TCS1].	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by freshwater sediment [TCR1b].	
Prevent discharge of undissolved substance to or recover from onsite wastewater [TCR14]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR9].	
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 ≥ (%)	59.9
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation measures to prevent/limit release from site	
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].	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94.1
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/d)	6.8e5
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable 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. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. G32. Available hazard data do not support the need for a DNEL to be established for other health effects. G36. Risk Management Measures are based on qualitative risk characterisation. G37.
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 SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

5. Use of Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411 as a Fuel – Industrial

Section 1 Exposure Scenario Title Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411	
Title	
Use as a Fuel	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 8a, 8b, 16
Environmental Release Categories	7
Specific Environmental Release Category	ESVOC SpERC 7.12a.v1
Processes, tasks, activities covered	
Covers the use as a fuel (or fuel additives and additive components) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid With potential for aerosol generation [CS138]
Vapour pressure (kPa)	Liquid, vapour pressure <0.5 kPa at STP. OC3.
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) G13
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. G15. Assumes a good basic standard of occupational hygiene is implemented G1.
Contributing Scenarios	**Specific Risk Management Measures and Operating Conditions**
General measures applicable to all activities CS135	Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions. G25
General measures (skin irritants) G19	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin effects that may develop. E3
Bulk transfers CS14	Wear suitable gloves tested to EN374. PPE15
Drum/batch transfers CS8	Wear suitable gloves tested to EN374.PPE15
Use as a fuel (closed systems) GEST_12I, CS107	No other specific measures identified EI20

Equipment cleaning and maintenance CS39	Drain down system prior to equipment break-in or maintenance E65 Wear chemically resistant gloves (tested to type EN374) in combination with 'basic' employee training PPE16
Storage CS67	Handle substance within a closed system. E84

Section 2.2 Control of environmental exposure

Product characteristics	
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	4.5e6
Fraction of Regional tonnage used locally	0.34
Annual site tonnage (tonnes/year)	1.5e6
Maximum daily site tonnage (kg/day)	5.0e6
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
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)	0.00001
Release fraction to soil from process (initial release prior to RMM)	0
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used [TCS1].	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by freshwater sediment [TCR1b]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR9].	
Treat air emission to provide a typical removal efficiency of (%)	95
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency ≥ (%)	97.7
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	60.4
Organisation measures to prevent/limit release from site	
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].	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	97.7
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/d)	5.0e6
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
Combustion emissions limited by required exhaust emission controls [ETW1]. Combustion emissions considered in regional exposure assessment [ETW2].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable 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. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. G32. Available hazard data do not support the need for a DNEL to be established for other health effects. G36. Risk Management Measures are based on qualitative risk characterisation. G37.
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 SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

6. Use of Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411 as a Fuel – Professional

Section 1 Exposure Scenario Title Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, **H411**	
Title	
Use as a Fuel	
Use Descriptor	
Sector(s) of Use	22
Process Categories	1, 2, 3, 8a, 8b, 16
Environmental Release Categories	9a, 9b
Specific Environmental Release Category	ESVOC SpERC 9.12b.v1
Processes, tasks, activities covered	
Covers the use as a fuel (or fuel additives and additive components) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	
Assessment Method	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product characteristics	
Physical form of product	Liquid With potential for aerosol generation [CS138]
Vapour pressure (kPa)	Liquid, vapour pressure <0.5 kPa at STP. OC3.
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) G13
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently) G2
Other Operational Conditions affecting exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. G15. Assumes a good basic standard of occupational hygiene is implemented G1.
Contributing Scenarios	**Specific Risk Management Measures and Operating Conditions**
General measures applicable to all activities CS135	Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions. G25
General measures (skin irritants) G19	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin effects that may develop. E3
Bulk transfers CS14	Wear suitable gloves tested to EN374. PPE15
Drum/batch transfers CS8	Use drum pumps or carefully pour from container E64 Wear suitable gloves tested to EN374.PPE15
Refuelling activities CS507	Wear suitable gloves tested to EN374 PPE15

Use as a fuel (closed systems) GEST_12I, CS107	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) E11 **or** Ensure operation is undertaken outdoors E69
Equipment cleaning and maintenance CS39	Drain down system prior to equipment break-in or maintenance E65 Wear chemically resistant gloves (tested to EN374) in combination with basic employee training PPE16
Storage CS67	Store substance within a closed system E84

Section 2.2 Control of environmental exposure

Product characteristics	
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	6.7e6
Fraction of Regional tonnage used locally	0.0005
Annual site tonnage (tonnes/year)	3.3e3
Maximum daily site tonnage (kg/day)	9.2e3
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Release fraction to air from wide dispersive use (regional use only) [OOC7]	1.0e-4
Release fraction to wastewater wide dispersive use [OOC8]	0.00001
Release fraction to soil from wide dispersive use (regional use only) [OOC9]	0.00001
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used [TCS1].	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion) [TCR1j]. 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 ≥ (%)	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%)	0
Organisation measures to prevent/limit release from site	
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].	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	94.1
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94.1
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/d)	1.4e5
Assumed domestic sewage treatment plant flow (m^3/d)	2000

Conditions and measures related to external treatment of waste for disposal
Combustion emissions limited by required exhaust emission controls [ETW1]. Combustion emissions considered in regional exposure assessment [ETW2].
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable regulations [ERW1].
Additional information on the basis for the allocation of the identified OCs and RMMs is contained in PETRORISK file.
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. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. G32. Available hazard data do not support the need for a DNEL to be established for other health effects. G36. Risk Management Measures are based on qualitative risk characterisation. G37.
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 SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].

7. Use of Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411 as a Fuel – Consumer

Section 1 Exposure Scenario Title Gas Oils (vacuum, hydrocracked & distillate fuels) H304 / non-H304, H315, H332, H351, H373, H411		
Title		
Use as a Fuel		
Use Descriptor		
Sector(s) of Use		21
Product Categories		13
Environmental Release Categories		9a, 9b
Specific Environmental Release Category		ESVOC SpERC 9.12c.v1
Processes, tasks, activities covered		
Covers consumer uses in fuels.		
Assessment Method		
See Section 3.		
Section 2 Operational conditions and risk management measures		
Section 2.1 Control of consumer exposure		
Product characteristics		
Physical form of product		liquid
Vapour pressure (kPa)		Liquid, vapour pressure > 10 Pa OC15
Concentration of substance in product		Unless otherwise stated, cover concentrations up to 100% [ConsOC1]
Frequency and duration of use/exposure		Unless otherwise stated, covers use amounts up to 37500g [ConsOC2]; covers skin contact area up to 420cm2 [ConsOC5]
Other Operational Conditions affecting exposure		Unless otherwise stated, covers use frequency up to 0.143 times per day [ConsOC4]; covers exposure up to 2 hours per event [ConsOC14]
Product Category		**Specific Risk Management Measures and Operating Conditions**
PC13:Fuels--Liquid - subcategories added: Automotive Refueling	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 210.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 37500g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m3[ConsOC11]; for each use event, covers exposure up to 0.05hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated [ConsRMM15]
PC13:Fuels--Liquid – subcategories added: Garden Equipment - Use	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; overs use up to 26 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 750g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated [ConsRMM15]
PC13:Fuels--Liquid (subcategories added):	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 420.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 750g [ConsOC2]; Covers
Garden Equipment - Refueling		use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.03hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated [ConsRMM15]
Section 2.2 Control of environmental exposure		
Product characteristics		

Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].	
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tonnes/year)	1.6e7
Fraction of Regional tonnage used locally	0.0005
Annual site tonnage (tonnes/year)	8.2e3
Maximum daily site tonnage (kg/day)	2.3e4
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Other given operational conditions affecting environmental exposure	
Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion) [TCR1j].	
Release fraction to air from wide dispersive use (regional only) [OOC7]	1.0e-4
Release fraction to wastewater from wide dispersive use [OOC8]	0.00001
Release fraction to soil from wide dispersive use (regional only) [OOC9]	0.00001
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	94.1
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/d)	3.5e5
Assumed domestic sewage treatment plant flow (m^3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
Combustion emissions limited by required exhaust emission controls [ETW1]. Combustion emissions considered in regional exposure assessment [ETW2].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable regulations [ERW1].	

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated.

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

Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html) [DSU4].