SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

The table contains identifiers (names and identification numbers) of the product which is marketed under the following business name:

C10 FRACTION NON-HYDROGENATED

DATA SOURCE FOR IDENTIFICATION	IDENTIFIERS	
	NAME OF SUBSTANCE	IDENTIFICATION NO.
Registration in accordance with REACH Regulation	***Name on registration*:** Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction (LOA Category L)	***registration no.:*** 01-2119487291-35-0001
List of harmonized classifications (Annex VI of CLP)	***Name in the list*:** substance is not in the list	***index no.:*** substance is not in the list
ECHA database of classifications and labels	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction	-
Other sources	***International chemical name:*** Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction	***CAS:*** 94733-07-0 ***EC:*** 305-586-4

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

2.1.1 Identified use

Monomer for the industrial production of hydrocarbon resin.

2.1.2 Non-recommended use

The registration documentation contains no non-recommended use.

1.3 Details of the supplier of the safety data sheet

- UNIPETROL RPA, s.r.o., Záluží 1, 436 70 Litvínov, Czech Republic
  ☎: +420 476 161 111 fax: +420 476 619 553
  unipetrolrpa@unipetrol.cz
  www.unipetrolrpa.cz
  - Director of the Monomers and Chemicals Unit: ☎: +48 242 566 615 Dorota.Smolarek@orlen.pl
  - Key Account Manager: ☎: +420 225 001 474 Beata.Zajicova@unipetrol.cz
  - Head of Customer Service Department: ☎: +420 476 162 006 Lucie.Markova@unipetrol.cz
- Person competent for SDS reach.unirpa@unipetrol.cz

1.4 Emergency telephone number

- UNIPETROL RPA, s.r.o. ☎:+420 476 163 111 (non-stop)
- MINISTRY OF HEALTH CENTRE
  Toxicological Information Center (TIC) ☎:+420 224 919 293 (non-stop)
  Na bojišti 1, 120 00 Prague 2, Czech Republic ☎:+420 224 915 402 (non-stop)
  e-mail: tis@vfn.cesnet.cz

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

The product is classified as hazardous in the sense of Regulation (EC) No 1272/2008 CLP:

FLAMMABLE LIQUID (CATEGORY 3)	**Flam. Liq. 3, H 226**
CARCINOGENIC (CATEGORY 1A)	**Carc. 1A, H 350**
MUTAGENIC (CATEGORY 1B)	**Muta. 1B, H 340**
ASPIRATION HAZARD (CATEGORY 1)	**Asp. Tox. 1, H 304**
SERIOUS EYE DAMAGE / EYE IRRITATION (CATEGORY 2)	**Eye Irrit. 2, H 319**
SKIN CORROSION / IRRITATION	**Skin Irrit. 2, H 315**
HAZARDOUS TO THE AQUATIC ENVIRONMENT (CATEGORY 2)	**Aquatic Chronic 2, H 411**

Note: Full wording of H- and EUH- phrases listed in Section 16

2.2 Label elements

product identifiers		**C10 FRACTION NON-HYDROGENATED** DISTILLATES (PETROLEUM), CRACKED, ETHYLENE MANUF. BY-PRODUCT, C9-10 FRACTION CAS number.: 94733-07-0
hazard pictogram(s)		 GHS02  GHS08  GHS07  GHS09
signal word		DANGER
hazard statements (H-phrases)	H226 H304 H315 H319 H340 H350 H411	Flammable liquid and vapour. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause genetic defects. May cause cancer. Toxic to aquatic life with long lasting effects.
precautionary statements (P-phrases)	P202 P210 P243 P280 P301+P310 P331	Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces – No smoking. Take precautionary measures against static discharge. Wear protective gloves/protective clothing/eye protection/face protection. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. DO NOT INDUCE vomiting.
		UNIPETROL RPA, s.r.o. Záluží 1, 436 70 Litvínov, Czech Republic ☎: +420 476 161 111, +420 476 163 111

2.3 Other hazards

Vapours with oxygen create explosive mixtures that are heavier than air, and so they amass and spread near the ground, and in case of a random leak may initiate a fire or explosion even far from the source. The product does not dissolve in water, it floats on and above the water surface and thus explosive mixtures with air may be created. There is a danger of explosion and subsequent fire if the product leaks in the sewage.

The product is classified as hazardous if inhaled. This means that in case of consumption and subsequent vomiting, there is a risk of aspiration (entering the lungs) and a risk of chemical pneumonia (lung swelling), which may lead to death.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

name of substance :	C10 fraction non-hydrogenated (for other names see Subsection 1.1)	
index no. (index) :	none	
CAS :	94733-07-0	
ES :	305-586-4	
this UVCB substance contains the following components • *in a concentration of ≥ 10% or* • *influencing the classification of this substance:*	*NAME :*	*IDENTIFIER :*
	benzene	*benzene (index 601-020-00-8, CAS 71-43-2, ES 200-753-7)*
	ethylbenzene	*ethylbenzene (index 601-023-00-4, CAS 100-41-4, ES 202-849-4)*
	xylenes	*xylene (index 601-022-00-9, CAS 1330-20-7, ES 215-535-7)*
	naphthalene	*naphthalene (index 601-052-00-2, CAS 91-20-3, ES 202-049-5)*
	indene	*indene (CAS 95-13-6, ES 202-393-6)*
	methylstyrenes	*methylstyrenes (CAS 25013-15-4, ES 246-562-2)*
	methylindenes	*2-methylindene (CAS 2177-47-1)*
	1,2-dihydronaphthtalene	*1,2-dihydronahthalene (CAS 447-53-0, ES 207-183-8)*
	tetrahydronaphthalene	*1,2,3,4-tetrahydrnaphthalehe (index 601-045-00-4, CAS 119-64-2, ES 204-340-2)*

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

4.1.1 General instructions

Ensure the operation of vital functions. In case of danger of loss of consciousness, move the patient into the stabilized position. Never give anything orally to unconscious individuals.

If possible with respect to your own safety, transport the patient out of the dangerous area and remove all contaminated clothing and shoes.

Ensure specialized medical help.

4.1.2 In case of inhalation

Transport the patient to fresh air, do not let them get cold and ensure specialized medical help.

4.1.3 In case of skin contact

Remove contaminated clothing and shoes. Thoroughly wash the affected areas with water (ideally tepid) and with soap. If you see signs of irritation, ensure specialized medical help.

4.1.4 In case of eye contact

Immediately start washing eyes while wide open under flowing tepid water, continue for at least 15 minutes. If the patient has contact lenses, remove them before washing eyes. Ensure specialized medical help.

4.1.5 In case if swallowed

DO NOT INDUCE VOMITING! If the patient is vomiting on their own, keep their head below their hips so that they do not inhale their vomit. Ensure specialized medical help as soon as possible.

4.2 Most important symptoms and effects, both acute and delayed

Based on the size of exposure, the substance may cause headaches, sore throat, coughing, breathing difficulties, chest pressure, disruptions of the central nervous system, nausea, sleepiness and dizziness. Consumption may lead to abdomen spasms, spontaneous vomiting with a risk of aspiration and of chemical pneumonia, which may cause death. Direct contact with eyes or skin may cause their irritation and cause the affected area to turn red, swell and produce tears. Prolonged exposure of the skin to the substance may lead to ungreasing and crackles.

4.3 Indication of any immediate medical attention and special treatment needed

Immediate medical help is necessary in case of consumption or if the substance enters the lungs. If a gastric lavage is necessary, it may be performed only by a qualified doctor via endotracheal intubation.
We recommend the workplace to be equipped with a safety shower and a device for eye washing

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SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Appropriate extinguishing media: low expansion foam, spray or water fog.
Inappropriate extinguishing media: direct water stream.
Extinguishing small fire: dry-powder or carbon dioxide (CO2) extinguisher, dry sand or extinguishing foam.

5.2 Special hazards arising from the substance or mixture

The vapors are heavier than air, and so they amass and spread near the ground, and in case of a random leak may initiate a fire or explosion even far from the source. This danger is imminent especially in places below the ground or in enclosed places. Toxic or irritating fuels containing monoxide, carbon dioxide or unburned hydrocarbon might be produced during burning.

5.3 Advice for fire fighters

Minimize the penetration of extinguishing medium contaminated by the substance into the sewage, surface or underground waters or into the soil. There is a danger of explosion and subsequent fire in case of a leak into the sewage.
Use water spray to keep the containers cool in order to prevent an explosion caused by the heat.
Do not use foam and water at the same time because water dissolves the foam.
Protective equipment for fire fighters: full protective gear and self-contained close-circuit breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Enclose the place and prevent the access to the area in danger. Remain on the windward side. There is a danger of fire in case of accidental release of this substance, therefore remove all possible ignition sources, do not smoke and do not manipulate with open fire. If possible, ensure a sufficient ventilation of enclosed spaces.

Prevent contact with the substance and its vapors. Use proper personal protective equipment (as indicated in Subsection 8.2) when removing the effects of the emergency event/accident. Evacuate people from the whole area in danger for large accidents. There is a danger of vapors explosion in case of substance initiation in places below the ground or in enclosed places (including sewage).

6.2 Environment precautions

Prevent further leaking and enclose the leaking place. Prevent leakage of the substance into the sewage, surface and underground waters by covering sewage inlets. Inform the relevant authorities if rivers, lakes or sewage systems have been contaminated during the leak.

6.3 Methods and material for containment and cleaning up

Safely drain the leaked substance. There is a danger of fire during a leak; therefore only explosion-proof luminaries and electrical equipment and non-sparking tools must be used. Absorb the remains into an appropriate non-flammable porous/absorbent material (e.g. sand, dirt, siliceous earth, vermiculit) and transport for disposal in sealed containers. Dispose of in accordance with valid legal regulations for waste (see Section 13).

For large leaks into water use floating barrage and collect the substance from surface using surface skimmers (separators) or cover the leaked substance with sorbent and remove saturated sorbent from the surface by scraping or draining. Consult a professional before using dispersing agents.

6.4 Reference to other sections

For recommended personal protective equipment see Subsection 8.2 („Limiting exposure“).
For recommended waste disposal see Section 13 („Disposal considerations“).

SECTION 7: HANDLING AND STORAGE

7.1 Safe handling instructions

Adhere to all fire safety precautions (no smoking, no open fire, removal of all possible combustion sources) and stay in well-ventilated areas when manipulating with the substance and with empty tanks (may contain residue). Do not perform activities such as welding, cutting, grinding etc. near containers (even empty ones). Only open containers where protection against leaks is ensured and appropriate suction. Keep in mind that the gases of the product are heavier than air, and so perform necessary precautions to prevent their accumulation underground. Do not use compressed air for emptying, filling or any other handling. Prevent bolts of static electricity.

Please keep the rules of personal hygiene. Take off contaminated pieces of clothing. Do not eat, drink or smoke during work! Wash your hands and exposed parts of body thoroughly with soap and water after work and before meal and possibly treat with suitable reparation lotion. Do not wear contaminated clothing, shoes or protective equipment in the catering area.

7.2 Conditions for safe storage, including any incompatibilities

Storage must adhere to the fire safety requirements on buildings and electric equipment must adhere to valid regulations. Store in cool, well-ventilated places with efficient suction from all heat and combustion sources. Storage containers must be closed, properly labeled and grounded. Recommended material suitable for containers is soft or stainless steel. Do not store near incompatible materials, such as oxidizers (oxygen, air etc.) or other flammable materials.

7.3 Specific end use(s)

The substance is not designated for specific use which would be adjusted by certain special recommendations. It is necessary to adhere to the instructions listed in Subsections 7.1 and 7.2 during manipulation and storage.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Limit values for exposure on the workplace

The limit values for exposure on the workplace are express in two values:

a/ the exposure value an employee can be affected by during the whole duration of a work shift (8 hours) without it endangering his health even after a lifetime of work exposure (PEL, 8-hour limit),

b/ the concentration of the substance which an employee must never be exposed to (NPK-P) or may only be exposed to for a precisely defined period of time (short time limit).

Czech Republic (government Regulation No361/2007 Coll.)		PEL [mg.m^{-3}]	NPK-P [mg.m^{-3}]
name :	see Chapter 1.1	**Limit values for the substance itself have not been determined** *it is recommended to adhere to the limits determined for the elements contained in the substance:*	
index no. :	none		
CAS :	94733-07-0		
ES :	305-586-4		

elements contained in the substance :	*NAME :*	*PEL [mg.m^{-3}]*	*NPK-P [mg.m^{-3}]*
	benzene	*3*	*10*
	ethylbenzene	*200*	*500*
	xylenes	*200*	*400*
	naphthalene	*50*	*100*

PEL : permissible exposure limit of the chemical substance in the air
NPK-P : maximum permissible concentration of the chemical substance in the air

European Union (directive 2000/39/ES)		8-hour limit [mg.m^{-3}]	short time limit [mg.m^{-3}]
name :	see Chapter 1.1	**Limit values for the substance itself have not been determined** *it is recommended to adhere to the limits determined for the elements contained in the substance:*	
index no. :	none		
CAS :	94733-07-0		
ES :	305-586-4		

elements contained in the substance :	*NAME :*	*PEL [mg.m^{-3}]*	*NPK-P [mg.m^{-3}]*
	benzene	*3,25*	*not determined*
	ethylbenzene	*442*	*884*
	xylenes	*221*	*442*
	naphthalene	*50*	*not determined*

8-hour limit: measured or calculated in relation to the reference period of eight hours as a time-weighted average
short time limit: limit value that should not be exceeded during exposure corresponding to 15 minutes

Germany		8-hour limit [mg.m^{-3}]	short time limit [mg.m^{-3}]
name :	see Chapter 1.1	**Limit values for the substance itself have not been determined** *it is recommended to adhere to the limits determined for the elements contained in the substance:*	
index no. :	none		
CAS :	94733-07-0		
ES :	305-586-4		

elements contained in the substance :	*NAME :*	*PEL [mg.m^{-3}]*	*NPK-P [mg.m^{-3}]*
	benzene	*3,5*	*not determined*
	ethylbenzene	*440*	*880*
	xylenes	*440*	*880*
	naphthalene (inhalable aerosol)	*0,5*	*0,5*
	methylstyrenes	*490*	*980*

8-hour limit: measured or calculated in relation to the reference period of eight hours as a time-weighted average
short time limit: limit value that should not be exceeded during exposure corresponding to 15 minutes

Netherlands		8-hour limit [mg.m^{-3}]	short time limit [mg.m^{-3}]
name :	see Chapter 1.1	**Limit values for the substance itself have not been determined** *it is recommended to adhere to the limits determined for the elements contained in the substance:*	
index no. :	none		
CAS :	94733-07-0		
ES :	305-586-4		

elements contained in the substance :	*NAME :*	*PEL [mg.m^{-3}]*	*NPK-P [mg.m^{-3}]*
	benzene	*3,25*	*not determined*
	ethylbenzene	*215*	*430*
	xylenes	*210*	*442*
	naphthalene	*50*	*80*

8-hour limit: *measured or calculated in relation to the reference period of eight hours as a time-weighted average*
short time limit: *limit value that should not be exceeded during exposure corresponding to 15 minutes*

DNEL/DMEL values

The DNEL value is the level of exposure following from toxicologic data where no detrimental effects on the health of people occur.

For non-threshold effects the basic presumption is that there exists no level (of exposure) without effects and DMEL thus represents the level of exposure corresponding to low and perhaps theoretical risk, which could be considered acceptable risk.

EXPOSURE OF WORKERS / EMPLOYEES				EXPOSURE OF GENERAL POPULATION / CONSUMERS			
EXPOSURE	**EFFECTS**	**ENTRY**	**DNEL/DMEL**	**EXPOSURE**	**EFFECTS**	**ENTRY**	**DNEL/DMEL**
acute	systemic	skin	non-threshold effect and/or no data on reaction to dose	acute	systemic	skin	non-threshold effect and/or no data on reaction to dose
acute	systemic	inhalation		acute	systemic	inhalation	
/	/	/	/	acute	systemic	orally	
acute	local	skin	non-threshold effect and/or no data on reaction to dose	acute	local	skin	non-threshold effect and/or no data on reaction to dose
acute	local	inhalation		acute	local	inhalation	
long-term	systemic	skin	DMEL 23,4 mg/kg of live weight/day	long-term	systemic	skin	DNEL 42,4 mg/kg of live weight/day
long-term	systemic	inhalation	DMEL 3,25 $mg.m^{-3}$	long-term	systemic	inhalation	DNEL 10,2 $mg.m^{-3}$
/	/	/	/	long-term	systemic	orally	DNEL 2,1 mg/kg of live weight/day
long-term	local	skin	non-threshold effect and/or no data on reaction to dose	long-term	local	skin	non-threshold effect and/or no data on reaction to dose
long-term	local	inhalation		long-term	local	inhalation	

Note: There is not enough information to determine the dermal, inhalation (or oral) DNEL/DMEL values for acute systemic and local effects and long-term effects. Hazard characterization is focused on the possibility to trigger serious long-term system effects.

PNEC values

PNEC values is the estimated concentration for which there are no hazardous effects in the given environment component.

The determination of concrete PNEC values based on experimental data obtained by testing the water fraction containing dissolved/emulgated/suspended shares of the tested substance (WAF) is not suitable for UVCB substances of the hydrocarbon type. The risk characterization of the product for the environment was thus determined by statistics hydrocarbon block method of extrapolating HC5 with the PETRORISK model.

Recommended procedure for monitoring concentrations in the work environment: gas chromatography (GC) with a flame ionizing detector (FID) or a mass spectrometer (MS) in accordance with technical norms ČSN EN 689 and ČSN EN 482.

8.2 Exposure controls

Technical protective measures to prevent exposure of people and the environment

Protective measures against exposure must be ensured by strictly keeping the substance under control by using process and control technologies, which reduce emissions and subsequent exposure with the goal of preventing the substance from entering the air and water systems as well as the soil, and of preventing possible human exposure. The areas where the substance is stored and manipulated must be equipped with impermeable floors and retaining tanks in case of emergency leaks. It is necessary to ensure global as well as local ventilation and efficient suction.

Individual protective measures

If an accident or extraordinary event causes increased exposure, employees must have access to personal protective measures (PPM) for the protection of airways, eyes, hands and skin, depending on the nature of the performed activities. Suitable protection for airways must also be available where it is not technically possible to ensure the adherence of exposition limits identified for the work environment or ensure that exposure via airways will not affect the health of people. During non-stop use of these measures during permanent work, it is necessary to include safety breaks if the nature of the PPM requires them. All PPM need to be kept in usable condition and damaged or contaminated ones need to be immediately replaced.

RECOMMENDED PERSONAL PROTECTIVE MEASURES (PPM):

- *protection of airways:* for leaks a protective breathing mask with a filter efficient against the effects or organic vapors, isolation breathing device for removing the consequences of extraordinary events
- *protection of eye / face:* protective glasses
- *protection of skin - hands* protective gloves

	glove material	*layer width*	*time of penetration*
general work activity (possibility of contamination)	nitril	0,4 mm	30 minutes
cleaning after leaks / emergencies	Viton	0,7 mm	480 minutes

- *protection of other body parts:* antistatic non-flammable protective clothing, antistatic shoes
- *heat danger:* not relevant for the identified manner of use
- *other precautions* we recommend the workplace to be equipped with a safety shower and a device for eye washing

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

PROPERTY	UNIT	VALUE	NOTE
appearance		colorless or yellowish liquid	
odour		characteristic, aromatic, petrol	
odour threshold	[ppm] [ppm] [mg.m^{-3}] [ppm] [mg.m^{-3}]	*research data for elements contained in the substance:* *4,68(benzene)* *140 (ethylbenzene)* *4,5 (xylenes)* *0,084 (naphthalene)* *240 (methylstyrenes)*	
pH value		not relevant	
melting / freezing point	[°C]	< -30 to +45	
initial boiling point / boiling range	[°C]	approx. 180-185	beginning of distillation ČSN EN ISO 3405
flash point		53-54	ČSN ISO 36-79

PROPERTY	UNIT	VALUE	NOTE
evaporation rate	diethyl ether=1 butyl acetate=1 diethyl ether=1 diethyl ether=1 butyl acetate=1 diethyl ether=1	*research data for elements contained in the substance:* *2,8 (benzene)* *0,84 (ethylbenzene)* *8,8 (ethylbenzene)* *13,5 (xylenes)* *<1 (naphthalene)* *190 (tetrahydronaphthalene)*	
flammability		determining flammability not relevant for liquids	
upper explosion limit	[%vol]	*research data for elements contained in the substance:* *7,8 (benzene)* *6,8 (ethylbenzene)* *7,5 (xylenes)* *5,9 (naphthalene)* *7,2 (indene)* *11,0 (methylstyrenes)* *6,4 (2-metylindene)* *5,0 (tetrahydronaphthalene)*	
lower explosion limit	[%vol]	*research data for elements contained in the substance:* *1,2 (benzene)* *0,8 (ethylbenzene)* *1,7 (xylenes)* *0,9 (naphthalene)* *1,0 (indene)* *0,8 (methylstyrenes)* *0,9 (2-metylindene)* *0,8 (tetrahydronaphthalene)*	
vapour pressure	[Pa] [Pa] [mm Hg]	200-2757 112-4100 *research data for elements contained in the substance:* *75 (benzene)* *10 (ethylbenzene)* *8,0 (xylenes)* *0,08 (naphthalene)* *1,2 (indene)* *2,0 (methylstyrenes)* *0,37 (tetrahydronaphthalene)*	at 19-20°C at 25°C at 20-25°C
vapour density	air=1	UVCB substance gases heavier than air *research data for elements contained in the substance:* *2,8(benzene)* *3,66 (ethylbenzene)* *4,5 (xylenes)* *4,42 (naphthalene)* *4,0 (indene)* *4,08 (methylstyrenes)* *4,5 (1,2-dihydronaphthalene)* *4,55 (tetrahydronaphthalene)*	
density	[kg.m^{-3}]	925-960	ČSN EN ISO 12185

PROPERTY	UNIT	VALUE	NOTE
solubility in water	[$g.l^{-1}$]	0,062-0,270	at 20°C
partition coefficient: n-octanol/water	[log Kow]	2,8 to > 6,5	
auto-ignition temperature	[°C]	approx. 442	ČSN EN 14522
decomposition temperature		does not decomposition down at usual temperatures of use	
kinematic viscosity	[$mm^2.s^{-1}$]	approx. 1,3	at 40°C ČSN EN ISO 3104
explosive properties		substance is not explosive	
oxidising properties		substance has not oxidising properties	

9.2 Other information
Not required.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
No threat of reactivity during storage and manipulation under the conditions listed in Section 7.

10.2 Chemical stability
The product is chemically stable when handled and stored under the conditions listed in Section 7.

10.3 Possibility of hazardous reactions
No threat of dangerous reactions during storage and manipulation under the conditions listed in Section 7.

10.4 Conditions to avoid
Sources of ignition (including static electricity), high temperature, creation of an explosive mixture with air.

10.5 Incompatible materials
Oxidizers.

10.6 Hazardous decomposition products
Heat decomposition at high temperatures, e.g. during fires, may cause the creation of carbon monoxide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
11.1.1 Substance

HAZARD CLASS	EFFECT ON HEALTH	JUSTIFICATION
Acute toxicity	based on available information there is no need to classify the substance for acute toxic effects on the health of people after inhalation, consumption or skin penetration *Acute toxicity* *oral: UVCB substance is not dangerous if it contains <25% of naphthalene* *inhalation: UVCB substance is not*	data from registration documentation

HAZARD CLASS	EFFECT ON HEALTH	JUSTIFICATION
	dangerous if it contains <12,5% of xylene *dermal: low toxicity, does not require classification*	
Skin corrosion/irritation	skin irritant *irritating* *unjustified* *unjustified* *irritating*	data from registration documentation: *data available for humans and animals* *examination of acid or alkaline reserve* *in vitro study* *in vivo study*
Serious eye damage/ irritation	eye irritant *irritating* *unjustified* *unjustified* *irritating*	data from registration documentation: *data available for humans and animals* *examination of acid or alkaline reserve* *in vitro study* *in vivo study*
Respiratory or skin sensitisation	based on available data the substance does not cause allergic reaction and therefore it does not need to be classified as sensitizing *non-sensitizing* *non-sensitizing*	data from registration documentation: *data available for humans and animals* *in vivo study*
Germ cell mutagenicity	causes heritable genetic changes *UVCB substance contains ≥0,1% of benzene and may induce detrimental genotoxic effects*	data from registration documentation: *in vitro study* *in vivo study*
Carcinogenicity	causes cancer *UVCB substance contains ≥0,1% and may cause cancer*	data from registration documentation
Reproductive toxicity	based on available information there is no need to classify the substance for adverse effects on fertility or fetus development *no detrimental reproduction or developmental effects were documented if the UVCB substance contains < 3% of toluene*	data from registration documentation*:* *fertility* *prenatal developmental toxicity*
Specific target organ toxicity – single exposure	based on available information there is no need to classify the substance for its capability to damage human organs during a single exposure *no detrimental effects were documented if the UVCB substance contains < 20% of toluene*	data from registration documentation
Specific target organ toxicity – repeated exposure	currently available information indicates that it is not necessary to classify the substance as damaging human organs at repeated exposure *no detrimental effects were documented if the UVCB*	data from registration documentation

HAZARD CLASS	EFFECT ON HEALTH	JUSTIFICATION
	substance contains <1% of benzene and <10% of toluene	
Aspiration hazard	might damage lungs or cause death in case of consumption and inhalation into airways	UVCB substance contains elements which cause lung swelling after inhalation and fulfils the conditions for considering it dangerous for inhalation – i.e. there are hydrocarbons with a cinematic viscosity of ≤ 20,5 $mm^2.s^{-1}$ at 40°C

11.1.2 Information on likely routes of exposure

Exposure may occur via inhalation, random consumption or by penetrating through the skin.

11.1.3 Symptoms and effects (acute, delayed and chronic after short-time and long-time exposure)

Based on the size of exposure, the substance may cause headaches, sore throat, coughing, breathing difficulties, chest pressure, disruptions of the central nervous system, nausea, sleepiness and dizziness. Consumption may lead to abdomen spasms, spontaneous vomiting with a risk of aspiration and of chemical pneumonia, which may cause death. Direct contact with eyes or skin may cause their irritation and cause the affected area to turn red, swell and produce tears. Prolonged exposure of the skin to the substance may lead to ungreasing and crackles. The substance can trigger heritable genetic changes and cause or help cause cancer.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

AQUATIC TOXICITY:

Subacute toxicity on invertebrates: EC50, 48 hours: 0,76-2,9 $mg.l^{-1}$ (*Daphnia*)
Study of water plants growth inhibition: EC50, 72 h.: 0,94 $mg.l^{-1}$
Subacute toxicity on fish: LC50, 96 h: 0,58-13,5 $mg.l^{-1}$

12.2 Persistence and degradability

Biological decomposability: it is not assumed that the product is easily biologically decomposable.
Abiotic decomposability:

- hydrolysis as a function of pH: the product is unaffected by hydrolysis,
- photolysis: the product is unaffected by photolysis,
- atmospheric oxidation: quick decomposition through indirect photolysis in the air is assumed.

12.3 Bioaccumulation potential

With regards to the value of distribution coefficient n-octane/water (log Kow) determined for individual components is within the range 2.8 to >6.5 and the calculated bioconcentrations BFC factor is within 26-174 (olefin C15 then 18000), the product's potential for bioaccumulation cannot be exactly confirmed. It is only possible to conclude that some of the included components are not bioaccumulative, others have more or less potential to be bioaccumulative.

12.4 Mobility in soil

Determining this parameter with the use of standard method designed for simple substances is not suitable for a UVCB substance of the hydrocarbon. The PETRORISK model using relations between the hydrocarbon groups and their properties was used to assess the hazard to the environment.

12.5 Results of PBT and vPvB assessment

This UVCB hydrocarbon substance should not be compared according to the criteria in Annex XIII of EC regulation No 1907/2006 REACH as a whole. Thus an assessment of the contained components was carried out with a conclusion that the product does not fulfill the criteria for persistent, bioaccumulating and toxic substances or the criteria for very persistent and very bioaccumulating substances in accordance with Annex XIII of EC regulation No 1907/2006 REACH, and so is not identified as a PBT substance (Persistent, Bioaccumulative, Toxic) or a vPvB (very Persistent, very Bioaccumulative) substance.

12.6 Other adverse effects

The product is considered hazardous harmful substance in the sense of Annex I to Water Act No 254/2001Coll.

SECTION 13: DISPOSAL CONSIDERATION

13.1 Waste treatment methods

If the product becomes waste, e.g. due to an accident or emergency, it is necessary to adhere to regulations valid in the EU as well as locally and nationally. Hand the waste for disposal to authorized professionals.

13.1.1 Recommended waste classification according to Decree No 381/2001 Coll. (Waste catalogue)

Catalogue number for products that have become waste:

07 01 04* Other organic solvents, washing liquids and mother liquors.

16 03 05* Organic waste containing dangerous substances.

Catalogue number for leaked product absorbed into an absorption agent (e.g. vapex):

15 02 02* Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances.

Catalogue number for soil contaminated by leaked product:

17 05 03* Soil and stones containing dangerous substances.

13.1.2 Recommended methods of waste disposal

Hand the waste for disposal to authorized professionals.
Energy utilization (burning).
Landfill and biodegradation in case of soil contaminated by leaked product.

13.1.3 Recommended methods of contaminated containers disposal

Not relevant. The product is not packed, it is transported by rail cisterns.

13.1.4 Considerations for limiting exposure when handling wastes

Do not flush leaked product during an emergency event or accident into sewage. Proceed in accordance with instructions provided in Section 6 („Accidental release measures“) and in Subsection 8.2 („Limiting exposure“) and adhere to all valid legal regulations for the protection of people, air and water.

SECTION 14: TRANSPORT INFORMATION

Information on transport classification are in accordance with the following UN Model Regulations:
European Agreement concerning the International Carriage of Dangerous Goods (ADR),
International Carriage of Dangerous Goods by Rail (RID).

14.1 UN number:	3295
14.2 UN proper shipping name:	HYDROCARBONS, LIQUID, N.O.S.
14.3 Transport hazard class(es):	3
14.4 Packing group:	III
14.5 Environmental hazards:	the product is hazardous for the environment in accordance with criteria stated in the UN Model Regulations
14.6 Special precautions for user:	none

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code: the product is not intended to be carried in bulk in accordance with the International Maritime Organization (IMO) documents

14.8 Other information

Hazard identification number:	30
Classification code:	F1
Safety sign:	3 + label for substances endangering the environment (symbol: fish and tree)

SECTION 15: REGULATORY INFORMATION

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

15.1.1 European Union

Regulation (EC) No 1907/2006 (REACH) of the European Parliament and of the Council, as amended

REGISTRATION (TITLE II OF REACH REGULATION)

The product was fully registered as a substance.

AUTHORIZATION (TITLE VII OF REACH REGULATION)

The product is not listed in the list of substances in Annex XIV of EC Regulation No 1907/2006 REACH, and so no licensing obligation applies.

RESTRICTION (TITLE VIII OF REACH REGULATION)

It is necessary to adhere to the limitations listed in records no. 3 and 40 of Annex XVII of EC Regulation No 1907/2006 REACH when producing, marketing and using this product.

Regulation (EC) No 1272/2008 (CLP) of the European Parliament and of the Council, as amended

The product has been classified in accordance with the abovementioned regulation. Obligations related to packing and labeling the package of hazardous chemical substance do not apply to the product with regards to the fact that it is not packed upon entering the market.

Regulation (EC) No 649/2012 of the European Parliament and of the Council concerning the export and import of dangerous chemicals, as amended

The product is not subject to special provision for export and import.

Directive 2006/12/EC of the European Parliament and of the Council on waste, as amended

Implemented into Act No 185/2001 Coll. on waste.

EP and Council Directive (EC) no. 2012/18 / EU on the control of major accident hazards involving dangerous substances, as amended

Implemented by Act no. 224/2015 Coll., On prevention of serious accidents caused by dangerous chemicals or mixtures.

15.1.2 The Czech Republic

Act No 350/2011 Coll. on chemical substances and mixtures, as amended
Act No 258/2000 Coll. on protection of public health, as amended
Act No 254/2001 Coll., on waters, as amended
Act No 201/2012 Coll., on the protection of the air, as amended
Act No 185/2001 Coll., on waste, as amended
Decree No 381/2001 Coll., in which the Waste Catalogue is stated, as amended
Government Regulation No 361/2007 Coll., determining conditions for occupational health protection, as amended
Act no. 224/2015 Coll., on prevention of serious accidents caused by selected dangerous chemical substances or mixtures, as amended
Notification of the Ministry of Foreign Affairs no. 17/2011, on the proclamation of accepting changes and addenda to "Annex A – General provisions on means of transportation and transportation" of the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADr)
Notification of the Ministry of Foreign Affairs no. 17/2011, on accepting changes in the regulations concerning the international carriage of dangerous goods by rail (RID), which forms Annex C to the Convention concerning International Carriage by Rail (COTIF)

15.2 Chemical safety assessment

Chemical safety assessment was performed. The substance fulfils the criteria for classification as dangerous in accordance with EC Regulation No 1272/2008 CLP. Exposure assessment and following risk characterization have been performed.

SECTION 16: OTHER INFORMATION

Changes made at revision

01.12.2009: Editing information in chapters 1, 2, 3, 9, 11, 12, 14, 15 and 16
01.12.2010: Editing information in chapters1 (registration number), 2 (classification and labeling according to CLP), 3, 9 and 16
01.08.2011: Complete revision of the document in relation to the updating of Annex II of Regulation (EC) No 1907/2006 REACH in accordance with Annex I of Commission Regulation (EU) No 453/2010
01.01.2012: Section 15.1.2 – updating legislation
01.06.2012: Section 1.1 - identifiers, Section 1.3 – update contact and Section 16 – abbreviations
31.05.2015: Section 1 (contact information), Section 2 and 16 (text deletion), Section 15.1 (update of legal regulations)
01.11.2016: Section 1 (contact information), Section 14 and 15 (editing in accordance with Regulation (EC) no. 830/2015), Section 15 (legislation update)

Abbreviations used in the text

CAS number	Registration number assigned to the substance by the Chemical Abstracts Service of the American Chemical Society.
EC number	Official number of the chemical substance in the European Union: EINECS (European Inventory of Existing Commercial Substances), or ELINCS (European List of Notified Chemical Substances), or NLP (No longer polymer list).
REACH (Regulation)	EU Regulation No 1907/2006 on the Registration, Evaluation and Authorization of Chemicals.
CLP (Regulation)	EU Regulation No 1272/2008 on the Classification, Labeling and Packaging of chemical substances and mixtures, which implements the United Nations' Globally Harmonized System into EU legislature.
SDS	Safety Data Sheet.
ECHA	European Chemicals Agency.
UVCB substances	Substances of Unknown or Variable composition, Complex reaction products or Biological materials.
ČSN EN (ISO)	European norm accepted into the Czech technical norms system.
OSN or UN	The United Nations.
IBC	The Intermediate Bulk Container.
MARPOL 73/78	The International Convention for the Prevention of Pollution from Ships of 1978.
DNEL	Derived No Effect Level.
DMEL	Derived Minimal Effect Level.
PNEC	Predicted No Effect Concentration.
WAF	Water Accommodated Fiction.
BCF	Bioconcentration Factor.

Sources of data used for setting up the safety sheet

Company records of Unipetrol RPA, s.r.o. on the classification of dangerous properties of products
Annexes I, IV, VI and VII to EC Regulation No 1272/2008 CLP, as amended
Principles for provision of first aid following exposure to chemical substances (doc. MUDr. Daniela Pelclová at al.)

Registration documentation for the substance in accordance with EC Regulation No 1907/2006 REACH
Decision of ECHA No SUB-D-2114147706-45-01/F on registration in accordance with EC Regulation No 1907/2006 REACH
Research data sources (Hazardous Substances Data Bank HSDB, Sicherheitstechnische Kenndaten chemischer Stoffe SORBE, MedisAlarm, University of Akron Chemical UAKRON, Gestis sanitary limits)

Full wording of H-phrases and EUH-phrases listed in SECTIONS 2 and/or 3

H 226	Flammable liquid and vapour.
H 304	May be fatal if swallowed and enters airways.
H 315	Causes skin irritation.
H 319	Causes serious eye irritation.
H 340	May cause genetic defects.
H 350	May cause cancer.
H 411	Toxic to aquatic life with long lasting effects.

Training guidelines

Those who manipulate with the product must be demonstrably informed of its dangerous properties, principles of protecting the environment and health from its harmful effects and principles of first aid (Act No 258/2000, as amended).

Access to information

According to article 35 of EC Regulation No 1907/2006 Reach, each employer must allow access to information listed in the safety sheet to all workers who use this product or are exposed to its effects during their work, and also to representatives of these workers.

Inspection and verification of safety sheet contents

Inspection and verification of the accordance of this document with the requirements of EC Regulation No 1907/2006 REACH and EC Directive No 1272/2008 CLP were performed by an independent specialist – Ing. Oldřich Petira, CSc., an authorized specialist in the fields of chemistry and environmental protection with an emphasis on industrial toxicology and chemical safety of the environment.

Proclamation: *Material This Material Safety Data Sheet has been elaborated in accordance with the Regulation (EC) No 1907/2006 REACH. It contains information necessary to ensure safety and protection of health at work and of the environment. This information does not substitute quality specification and should not be construed as any guarantee of suitability for particular applications. The data contained are based on the present state of knowledge and current national legislation. The user is responsible for ensuring the compliance with the relevant regional legislation.*

ANNEX OF MATERIAL SAFETY DATA SHEET

EXPOSURE SCENARIOS ACCORDING TO ARTICLE 31 OF REGULATION (EC) NO 1907/2006 (REACH) OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

The annex contains exposure scenarios applied from chapter 9 of the report on chemical safety presented at the registration of this substance for its designated use.

EXPOSURE SCENARIO 1: PRODUCTION OF C10 FRACTION NON-HYDROGENATED

SECTION 1	**EXPOSURE SCENARIO TITLE**
Name	Production of C10 fraction non-hydrogenated CAS 94733-07-0
Use descriptor	Sector of Use: key descriptor SU 3 Industrial use supplementary descriptors: SU8, SU9 Process categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15 Environment release categories: ERC1, ERC4
Processes, tasks, activities covered	Production of substance and its use an intermediate product or as procedural chemical extraction agent. Includes recycling/utilization, material transports, storing, sample extraction, related laboratory work, maintenance and filling into means of transportation (including sea vessels/boats, road/rail cisterns and cistern containers).

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	***Control of worker exposure***
Product characteristics	
Physical form of product	Liquid, vapor pressure 0.5 -10 kPa [OC4].
Concentration of substance in	
Amounts used	Not applicable.
Frequency and duration of use/exposure	Continual process 24 hours/day, 330-360 days/year. Operators work in a usual working week (i.e. 40 hours/week), i.e. approx 220 days/year. Covers daily exposures up to 8 hours (unless stated differently) [G2].
Human factors not influenced by risk management	None identified.
Other operational conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing scenarios:	**Risk management measures :**
General measures (carcinogens) [G18].	Consider technical advances and process upgrades including automation) for the elimination of releases. Minimize exposure using measures such as closed systems, dedicated facilities and suitable general / local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean / flush equipment, where possible, prior to maintenance. Where there is potential for exposure: Restrict access to authorized persons, provide specific activity training to operators to Minimize exposures, wear suitable gloves and coveralls to prevent skin contamination, wear respiratory protection when its use is identified for certain contributing scenarios, clear up spills immediately and dispose of wastes safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance[G20].
General measures (substances causing skin irritation)	Avoid all skin contact with product. Identify places of possible indirect contact of skin with the product. Wear gloves (tested to EN374) if hand contamination likely. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop[E3].
General measures (liquid substances with aspiration hazard - entry into	Do not swallow the substance. If accidently consumed, seek medical help immediately.

lungs)	
General exposure (closed systems) [CS15].	Handle substance within a closed system [E47].
General exposure (closed systems) [CS15]. With sample collection [CS56]. With occasional controlled exposure [CS140].	Handle substance within a closed system [E47]. Provide extract ventilation to points where emissions occur [E54]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].
General exposure (closed systems) [CS15]. Use in contained batch processes [CS37].	Handle substance within a closed system [E47]. Provide extract ventilation to points where emissions occur [E54]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [OC27].
General exposures (open systems) [CS16]. Batch process [CS55] With sample collection [CS56].	Provide extract ventilation to points where emissions occur [E54]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].
Process sampling[CS2].	Sample via a closed loop or other system to avoid exposure [E8]. Provide extract ventilation to points where emissions occur [E54]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [OC27].
Laboratory activities [CS36].	Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40]. Handle within a fume cupboard or implement suitable equivalent methods to Minimize exposure [E12].
Bulk transfers [CS14]. (open systems) [CS108]. With potential for aerosol generation [CS138].	Ensure material transfers are under containment or extract ventilation [E66]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].
Bulk transfers [CS14]. (closed systems) [CS107].	Ensure material transfers are under containment or extract ventilation [E66]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].
Equipment cleaning and maintenance [CS39].	Drain down and flush system prior to equipment break-in or maintenance [E55]. Provide extract ventilation to points where emissions occur [E54]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69]. Clear spills immediately [C&H13]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4].
Storage [CS67]. With occasional controlled exposure [CS140].	Provide extract ventilation to material transfer points and other openings [E82]. Store substance within a closed system [E84].

	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].
Section 2.2	***Control of environmental exposure***
Product characteristics	Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a]. Not easily biologically decomposable.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tones/year)	2.5e6
Fraction of Regional tonnage used locally	0.24
Annual site tonnage (tones/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	40
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-5
Release fraction to wastewater from process (initial release prior to RMM)	1.0e-5
Release fraction to soil from process (initial release prior to RMM)	1.0e-4
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 inhalation) [TCR1k]. Prevent discharge of undissolved substance to or recover from 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 of ≥ (%). The treatment can be performed either on-site or through local/communal sewage treatment plant.	0
Organization measures to prevent/limit release from site	
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 (%)	94.9
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94.9
Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release (kg/d)	2.0e6
Assumed domestic sewage treatment plant flow (m3/d)	10000
Conditions and measures related to external treatment of waste for disposal	
During manufacturing no waste of the substance is generated [ETW 4]	
Conditions and measures related to external recovery of waste	
During manufacturing no waste of the substance is generated [EWR 2]	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1	***Health***
Exposure estimations were performed via the ECETOC TRAv2 method. When adhering to recommended precautions for risk management under the listed operating conditions it is not assumed that exposure could exceed	

the determined DNEL/DMEL values.	
Section 3.2	***Environment***
Exposure estimations were performed via the statistical block HC5 extrapolation method in the PETRORISK model.	

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1	***Health***
The assumed exposure is not expected to exceed the determined DNEL/DMEL values as long as the Risk management measures/operating conditions listed in Section 2 are adhered to. The processes related to production do not represent an unacceptable risk for the health of employees in the industry if exposures are controlled via suitable operating conditions (e.g. the duration of tasks, use of ventilation) and precautions for risk management (e.g. personal protective measures) ensuring that the exposure does not exceed the determined DNEL/DMEL values. Where Risk management measures/operating conditions are adjusted, users must ensure that risks are controlled at least on equivalent levels.	
Section 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].	

EXPOSURE SCENARIO 2: DISTRIBUTION OF C10 FRACTION NON-HYDROGENATED

SECTION 1	**EXPOSURE SCENARIO TITLE**
Name	Distribution of c10 fraction non-hydrogenated CAS 94733-07-0
Use descriptor	Sector of Use: key descriptor SU 3 Industrial use supplementary descriptors: SU8, SU9 Process categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15 Environment release categories: ERC1-7
Processes, tasks, activities covered	Placement into means of transportation (including naval ships/boats, tank cars/vehicles and tank containers), recasing of substance (including barrels as well as small casing), including its distribution and related laboratory activities.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	***Control of worker exposure***
Product characteristics	
Physical form of product	Liquid, vapor pressure 0.5 -10 kPa [OC4].
Concentration of substance in	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable.
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently) [G2].
Human factors not influenced by risk management	None identified.
Other operational conditions affecting worker exposure	
Contributing scenarios:	**Risk management measures :**
General measures (carcinogens)[G18].	Consider technical advances and process upgrades including automation) for the elimination of releases. Minimize exposure using measures such as closed systems, dedicated facilities and suitable general / local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean / flush equipment, where possible, prior to maintenance. Where there is potential for exposure: Restrict access to authorized persons, provide specific activity training to operators to Minimize exposures, wear suitable gloves and coveralls to prevent skin contamination, wear respiratory protection when its use is identified for certain contributing scenarios, clear up spills immediately and dispose of wastes safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance[G20].
General measures (substances causing skin irritation)	Avoid all skin contact with product. Identify places of possible indirect contact of skin with the product. Wear gloves (tested to EN374) if hand contamination likely. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop[E3].
General measures (liquid substances with aspiration hazard - entry into lungs)	Do now swallow the substance. In case of random consumption immediately ensure medical help.
General exposure (closed systems)	Handle substance within a closed system [E47].

[CS15].	
General exposure (closed systems) [CS15]. With sample collection [CS56]. With occasional controlled exposure [CS140].	Handle substance within a closed system [E47]. Provide extract ventilation to points where emissions occur [E54]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69].
General exposure (closed systems) [CS15]. Use in contained batch processes [CS37].	Handle substance within a closed system [E47]. Provide extract ventilation to points where emissions occur [E54]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [OC27].
General exposures (open systems) [CS16]. Batch process [CS55] With sample collection [CS56].	Ensure material transfers are under containment or extract ventilation [E66]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].
Process sampling[CS2].	Handle substance within a predominantly closed system provided with extract ventilation [E49]. Sample via a closed loop or other system to avoid exposure [E8]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. Avoid carrying out activities involving exposure for more than 1 hour [OC27].
Laboratory activities [CS36].	Handle within a fume cupboard or implement suitable equivalent methods to Minimize exposure [E12].
Bulk transfers [CS14]. (closed systems) [CS107].	Ensure material transfers are under containment or extract ventilation [E66]. Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].
Bulk transfers [CS14]. (open systems) [CS108].	Ensure material transfers are under containment or extract ventilation [E66]. Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].
Drum and small package filling [CS6].	Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40]. Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].
Equipment cleaning and maintenance[CS39].	Drain down and flush system prior to equipment break-in or maintenance [E55]. Clear spills immediately [C&H13]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4].
Storage [CS67]. With occasional controlled exposure [CS140].	Transfer via enclosed lines [E52]. Provide extract ventilation to points where emissions occur [E54]. Ensure operation is undertaken outdoors [E69]. Store substance within a closed system [E84].
Section 2.2	***Control of environmental exposure***

Product characteristics	Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a]. Not easily biologically decomposable.
Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tones/year)	2.5e6
Fraction of Regional tonnage used locally	0.002
Annual site tonnage (tones/year)	5.0e3
Maximum daily site tonnage (kg/day)	5.0e4
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	100
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-03
Release fraction to wastewater from process (initial release prior to RMM)	1.0e-05
Release fraction to soil from process (initial release prior to RMM)	1.0e-05
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 inhalation) [TCR1k]. Prevent discharge of undissolved substance to or recover from wastewater [TCR14]. No 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 of ≥ (%). The treatment can be performed either on-site or through local/communal sewage treatment plant.	0
Organization measures to prevent/limit release from site	
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 (%) [STP3]	94.9
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]	94.9
Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release (kg/d)	1.6e5
Assumed domestic sewage treatment plant flow (m3/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. [ETW5]	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of the substance is generated [ERW3]	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1	***Health***
Exposure estimations were performed via the ECETOC TRAv2 method. When adhering to recommended precautions for risk management under the listed operating conditions it is not assumed that exposure could exceed the determined DNEL/DMEL values.	
Section 3.2	***Section 3.2***
Exposure estimations were performed via the statistical block HC5 extrapolation method in the PETRORISK model.	

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1	***Health***
The assumed exposure is not expected to exceed the determined DNEL/DMEL values as long as the Risk management measures/operating conditions listed in Section 2 are adhered to. The processes related to production do not represent an unacceptable risk for the health of employees in the industry if exposures are controlled via suitable operating conditions (e.g. the duration of tasks, use of ventilation) and precautions for risk management (e.g. personal protective measures) ensuring that the exposure does not exceed the determined DNEL/DMEL values. Where Risk management measures/operating conditions are adjusted, users must ensure that risks are controlled at least on equivalent levels.	
Section 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].	

EXPOSURE SCENARIO 3: USE OF C10 FRACTION NON-HYDROGENATED AS A MONOMER FOR INDUSTRIAL PRODUCTION OF POLYMERS

SECTION 1	**EXPOSURE SCENARIO TITLE**
Name	Use of C10 fraction non-hydrogenated as a monomer for industrial production of polymers CAS 94733-07-0
Use descriptor	Sector of Use: key descriptor SU 3 Industrial use supplementary descriptors: SU10 Process categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC14 Environment release categories: ERC6A, ERC6C
Processes, tasks, activities covered	Production of polymers from monomers in continual and batch processes includes coating, emptying and maintenance of reactors and immediate production of polymer products (e.g. synthesis, pelletization, degassing).

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	***Control of worker exposure***
Product characteristics	
Physical form of product	Liquid, vapor pressure 0.5 -10 kPa [OC4].
Concentration of substance in	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable.
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently) [G2].
Human factors not influenced by risk management	None identified.
Other operational conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature[G15]. Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing scenarios:	**Risk management measures :**
General measures (carcinogens)[G18].	Consider technical advances and process upgrades including automation) for the elimination of releases. Minimize exposure using measures such as closed systems, dedicated facilities and suitable general / local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean / flush equipment, where possible, prior to maintenance. Where there is potential for exposure: Restrict access to authorized persons, provide specific activity training to operators to Minimize exposures, wear suitable gloves and coveralls to prevent skin contamination, wear respiratory protection when its use is identified for certain contributing scenarios, clear up spills immediately and dispose of wastes safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance[G20].
General measures (substances causing skin irritation)	Avoid all skin contact with product. Identify places of possible indirect contact of skin with the product. Wear gloves (tested to EN374) if hand contamination likely. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop[E3].
General measures (liquid substances with aspiration hazard - entry into	Do not swallow the substance. If accidently consumed, seek medical help immediately.

lungs)	
General exposure (closed systems) [CS15]. Continuous process [CS54]. No sampling [CS57].	Handle substance within a closed system [E47].
Bulk transfers [CS14]. Transport [CS58]. With sample collection [CS56].	Ensure material transfers are under containment or extract ventilation [E66]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].
Polymerization (bulk and batch) [CS65]. Continuous process [CS54]. With sample collection [CS56].	Handle substance within a closed system [E47]. Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [OC28].
Polymerization (bulk and batch) [CS65]. Batch process [CS55] .With sample collection [CS56].	Handle substance within a closed system [E47]. Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [OC27].
Finishing operations [CS102]. Batch process [CS55]. Inactivation and removal of catalyzer, washing and stripping/distillation for removal of residual monomer.	Handle substance within a closed system [E47] Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 1 hour [OC27].
Intermediate polymer storage[CS66] .	Limit the substance content in the product to 5% [OC17]. Provide extract ventilation to points where emissions occur [E54].
Additivation and stabilization [CS69].	Limit the substance content in the product to 5% [OC17]. Handle substance within a predominantly closed system provided with extract ventilation [E49].
Mixing in containers[CS23]. Batch process [CS55].	Limit the substance content in the product to 5% [OC17]. Provide extract ventilation to points where emissions occur [E54]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11].
Pelletizing [CS53]. Extrusion and masterbatching [CS88].	Limit the substance content in the product to 5% [OC17]. Ensure material transfers are under containment or extract ventilation [E66]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69].
Pelletizing [CS53].	Limit the substance content in the product to 5% [OC17]. Ensure material transfers are under containment or extract ventilation [E66]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or [G9]: Ensure operation is undertaken outdoors [E69].
Pelletization and pellet screening [CS68].	Limit the substance content in the product to 5% [OC17]. Ensure material transfers are under containment or extract ventilation [E66].
Bulk transfers [CS14]. Continuous process [CS54]. With sample collection [CS56].	Limit the substance content in the product to 5% [OC17]. Ensure material transfers are under containment or extract ventilation [E66].
Transport [CS58]. With sample collection [CS56].	Limit the substance content in the product to 5% [OC17]. Ensure material transfers are under containment or extract ventilation [E66].
Equipment maintenance [CS5].	Drain down system prior to equipment break-in or maintenance [E55].

	Clear spills immediately [C&H13]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4].
Storage [CS67]. With occasional controlled exposure [CS140].	Limit the substance content in the product to 5% [OC17]. Sample via a closed loop or other system to avoid exposure [E8]. Store substance within a closed system [E84]. Avoid carrying out activities involving exposure for more than 1 hour [OC27].
Section 2.2	***Control of environmental exposure***
Product characteristics	Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a]. Not easily biologically decomposable.

Amounts used	
Fraction of EU tonnage used in region	0.1
Regional use tonnage (tones/year)	2.5e3
Fraction of Regional tonnage used locally	1
Annual site tonnage (tones/year)	2.5e3
Maximum daily site tonnage (kg/day)	2.5e4
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	100
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-4
Release fraction to wastewater from process (initial release prior to RMM)	1.0e-4
Release fraction to soil from process (initial release prior to RMM)	1.0e-4
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 (especially consumption) [TCR1j]. No wastewater treatment required [TCR9]. Prevent discharge of undissolved substance to or recover from wastewater [TCR14].	
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 of ≥ (%). The treatment can be performed either on-site or through local/communal sewage treatment plant.	0
Organization measures to prevent/limit release from site	
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 (%) [STP3]	94.9
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) [STP4]	94.9
Maximum allowable site tonnage (MSafe) based on domestic sewage treatment release (kg/d)	5.0e4
Assumed domestic sewage treatment plant flow (m3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
Treatment and disposal of waste should comply with applicable regulations[ETW3]	
Conditions and measures related to external recovery of waste	
Treatment and disposal of waste should comply with applicable regulations[ERW1]	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1	***Health***
Exposure estimations were performed via the ECETOC TRAv2 method. When adhering to recommended precautions for risk management under the listed operating conditions it is not assumed that exposure could exceed the determined DNEL/DMEL values.	
Section 3.2	***Section 3.2***
Exposure estimations were performed via the statistical block HC5 extrapolation method in the PETRORISK model.	

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1	***Health***
The assumed exposure is not expected to exceed the determined DNEL/DMEL values as long as the Risk management measures/operating conditions listed in Section 2 are adhered to. The processes related to production do not represent an unacceptable risk for the health of employees in the industry if exposures are controlled via suitable operating conditions (e.g. the duration of tasks, use of ventilation) and precautions for risk management (e.g. personal protective measures) ensuring that the exposure does not exceed the determined DNEL/DMEL values. Where Risk management measures/operating conditions are adjusted, users must ensure that risks are controlled at least on equivalent levels.	
Section 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].	