

Safety Data Sheet

according to the requirements of Regulation (UE) no. 453/2010

Naphtha (petroleum), hydrotreated light n-HEXANE

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

1.1 Identification of the substance:	Naphtha (petroleum), hydrotreated light
ECHA Registration No.	01-2119475133-43-0010
Other means of identification	n-HEXANE
1.2 Relevant identified uses of the substance or mixture and contraindications uses	Polymerization solvent to obtain high density polyethylene and polypropylene, as a solvent in the food industry, in the tire industry.
1.3 Details of the safety data sheet supplier	PRODUCER ROMPETROL REFINING SA Working point - Vega Refinery (COMPANY OF THE ROMPETROL GROUP) Valeni Street, no 146, Ploiesti Telephone : 40-241- 506 040 (RR) ; 40 - 244 - 406 - 110 (Vega) Fax : 40-241- 506 930 (RR) ; 40 - 244 - 514 - 469 (Vega) rodica.oancea@rompetrol.com
1.4 Emergency telephone	0244 406 110 (between 7 and 15,30) 0244 406 204 (between 15,30 and 7)

SECTION 2 : HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

HAZARDOUS SUBSTANCE:

a) Acc. to Directive 67/548/EEC :
F,R11; X_n R65, N 51/53 (Note P ;Appendix 1-6 REACH)

b) Acc. to Regulation(EC) 1272/2008 (CLC):
Flam. cat 2 /H225 (OIN4), Asp. Tox. 1/H304,H315, H411(category 2)

Contains less than 0.1% benzene!

Note P is applied (Appendix 1-6 REACH) is not necessary to apply the classification as a carcinogen if it is shown that the substance contains less than 0.1% in weight of benzene (Einecs No 200-753 - 7).

Adverse effects of physical and chemical properties:

Very inflammable. In utilisation, vapour with air, may form flammable / explosive mixtures in the presence of heat or ignition sources (electrical, mechanical, flame).
Generates electrostatic charge during handling.
The substance is harmful by inhalation and skin contact.

Inhalation, by long exposure, may cause mucous membrane and respiratory tract irritation.
Not classified as irritant to eyes - tests show that the effect on the eyes is minimum
On long-term, may cause adverse effects on the aquatic environment.

2.2 Elements for label

Label acc. to Regulation 1272/2008

**Pictogram,
Signal word
Code(s)**

GHS08

Dgr



Danger



Attention



**Hazard statement
(H)**

H304: May be fatal if swallowed and enters airways
H 225: Highly flammable liquid and vapour (OIN4)
H 336: May cause drowsiness or dizziness.
H 315: Causes skin irritation
H 361: Suspected of damaging fertility
H 411: Toxic to aquatic life with long lasting effects.
(Category 2)

**Precautionary
Statements (P)
Prevention**

P280 : Wear protective gloves/protective clothing/eye protection/face protection.
P 210: Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

**Precautionary
Statements (P)
Intervention**

P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P331 : Do NOT induce vomiting
P 370+P378: In case of fire: Use chemical foam for extinguishing.

**Precautionary
Statements (P)
Storage**

P403+P233 Store in a well-ventilated place. Keep container tightly closed

2.3 Other hazards: n.a.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance

Complex of hydrocarbons obtained by fractionation, extractive distillation and hydrogenation of olefins, in the presence of a catalyst. It contains hydrocarbons with a number of carbon atoms between C5-C6 and distillation range between 65 ° C and 72 ° C

Composition on classes of hydrocarbons:

n Paraffins : 56,84 %
 i paraffins : 23,19%
 olefins : 0,069 %
 naphthenes : 19,90 %
 aromatics : 0,0006%
(Benzene : 0,0001%)

Main constituent:

Nr crt	Name	%(w/w)	CAS	EC
1	Naphtha (petroleum), hydrotreated light	100	64742-49-0	265-151-9

Important constituents:

Name	CAS	EC	Concentration %	Classification acc. to Annex 1 Directive 67/548/EEC	Classification acc. to Regulation 1272/2008 (GHS)/ Risk Phrases
N Hexane	110-54-3	203-777-6	Aprox 56%	F; R11 Repr. Cat. 3; R62 Xn; R65-48/20 Xi; R38, R67 N; R51-53	Flam. Liq. 2/H225 Repr.2/H361f Asp.Tox.1/H361f STOT RE 2/H304 Skin Irrit .2/H373 Aquatic Chronic 2/H315, H336, H411
I-HEXANE	107-83-5	203-523-4	20	F,R11, XN R65,R67, Xi R38, N 51/53	Flam. Liq. 2 /H225 Asp. Tox. 1 /H304 Skin Irrit. 2 /H315 STOT SE 3 /H336 Aquatic Chronic 2 /H411
METYL CYCLOPENT AN	108-87-2	203-624-3	17,4	F, XN, N , R11-38-51/53-65-67	Flam. Liq. 2 /H225 Asp. Tox. 1 /H304 Skin Irrit. 2 /H315 STOT SE 3 /H336 Aquatic Chronic 2 /H411
CYCLOHEXANE	110-82-7	203-806-2	2,5	F, XN, N R11-38-65-67-50/53	Flam. Liq. 2/H225 Asp. Tox. 1/H304 Skin Irrit. 2/H315 STOT SE 3/H336 Aquatic Acute 1 Aquatic Chronic 1H411

SECTION 4 : FIRST AID MEASURES
4.1 Description of first aid measures:
1. 4.1.1 Relevant routes of exposure are: inhalation, skin and eyes contact and ingestion.
First aid in case of:

Inhalation: Remove victim to fresh air and perform artificial breathing, if the person has first aid knowledge in this regard. Transport the victim to hospital.

Eye contact: Wash eyes with plenty of water, including under the eyelids. Washing will be performed until the victim arrives to hospital.

Skin contact: Wash contaminated area with soap and water for at least 15 minutes and rub the skin with a protective cream.

Ingestion: Do not cause vomiting. If vomiting occurs spontaneously, bend the victim towards, in order to reduce the risk of aspiration of product, into the lungs.

It will consist of: breathing apparatus, neoprene gloves, goggles, protective and oil resistant clothing and footwear, no metallic accessories.

4.2 The most important symptoms and effects, both acute and delayed

Prolonged exposure can cause abdominal pain, coughing, headaches, nausea, loss of balance, central nervous system depression or the onset of pulmonary edema.

4.3 Indications regarding any required medical assistance and special treatment care.

If needed, require medical emergency care.

If it was ingested, give paraffin oil or other vegetal oil, saline purgative. (perform gastric lavage).

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Means for extinguishing fire

Suitable extinguishing media: ABC powder, BC powder, steam, inert gas, halons substitutes, aerosols, foam.

Improper extinguishing media: Water (jet, spray), special powders "D", chemically improved water.

5.2 Special hazards caused by the substance or mixture

In case of fire, can produce toxic fumes. Generates explosive atmosphere.

5.3 Recommendations for fire-fighters

Wear protective antistatic equipment.

Wear an isolated autonomous respiratory protection apparatus with compressed air and full protective equipment.

When the fire is extinguished, it will be used for cleaning, tools that do not produce sparks.

If the containers temperature rises, measures will be taken to cool them with spray of water (in rain).

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For staff not involved in emergency situations Ensure ventilation of the contaminated area and remove sources of fire. No smoking! Do not inhale fumes and avoid contact with liquid.
Take precautionary measures against electrostatic discharge by using non-sparking tools. Wear the appropriate personal protective equipment mentioned in Section 8 of the safety data sheet.
Comply with established emergency procedures to evacuate from the danger zone.
Avoid prolonged exposure to the atmosphere charged with vapors without wearing protective equipment.
It will consist of: breathing apparatus, neoprene gloves, goggles, protective oil resistant clothing and footwear, no metallic accessories.

6.1.2 For those staff involved in emergency situations: Delimitation of the area where leakage occurred.
Prevent water and soil contamination through drains, ditches or rivers, by collecting it and using absorbent materials, sand, earth or other available barriers.

6.2 Environmental precautions:

Prevent discharge into the environment.

6.3 Methods and equipment for fire-fighting and cleaning

6.3.1 Measures to isolate a quantity discharged: Cover the product leakage with non-combustible absorbent materials: sand, diatomite, binder acid, universal binder, sawdust. The cleaning materials become hazardous wastes

6.4 References to other sections: See section 8 and 13**SECTION 7: HANDLING AND STORAGE****7.1. Precautions for handling in a safe manner****7.1.1
Recommendations
on handling**

Because the product is highly flammable and the vapours may generate potentially explosive atmosphere, handling is performed by strictly complying with the technological and emergency situations instructions and all relevant regulations regarding explosive atmosphere; During handling, equipment and tools will be used in accordance with National and European legislation for explosive atmospheres: tools. Loading facilities will be linked to the ground; the containers, in which the uploading is made, are necessary to be linked to the ground against static electricity. Outlets will be inspected regularly.

To be used away from heat / sparks / open flames / hot surfaces.

To be used outdoors or in a well ventilated area. If it is used in confined spaces, ensure adequate ventilation and perform regular determination of contaminants.

Do not work under pressure; compressed air is not used for loading / unloading, handling.

Handling temperature - ambiental

Avoid contact with skin and eyes. Avoid inhaling the product.

- Precautions:

For respiratory protection are used gas mask with filter for organic vapors or autonomous breathing apparatus (SCBA) This are worn whenever exposure can not be fully assessed or where it is likely to be a deficit of oxygen. Determinations the vapor concentration must be done which must be below the lower explosive limit (LEL)

**7.1.2
Recommendations
on general hygiene
at the working
place.**

Use protective and oil-resistant clothing, goggles, neoprene gloves, anti-static shoes (see section 8 of the sheet)

During handling and use, do not eat / drink or smoke

Ensure good personal hygiene after using the product

7.2. Conditions for secure storage, including any incompatibilities**- Technical
measures:**

Storage is done in specially designated containers, provided with safety equipment, grounding devices and water spray rings. It is indicated the use of tanks with floating roof to prevent evaporation losses.

Small amounts can be stored in drums, cans or metal containers, tightly closed and properly labelled, in cold areas, dry, well ventilated, away from heat and ignition sources.

**- Storage
conditions:**

It should be stored outdoors, in remote areas, away from direct sunlight. Tanks will be equipped (on the cover) with hydraulic breathing valve and fire stopper.

For storage, use clean containers / tanks specially designed, to avoid contamination or the appearance of unwanted reactions.

Inspection, maintenance and tank cleaning should be performed only by qualified and properly equipped personnel (see section 8 of the sheet).

Before entering the storage tanks and begin any operation, perform determination of oxygen, hydrogen sulfide and flammability.

Periodically check the tightness of containers. Qualified staff will periodically verify the tanks to prevent leakage of product.

Store away from heat / sparks / open flames / hot surfaces.

In case of large quantities storages, the storage areas should be designed with retaining walls around the tanks, to prevent pollution of soil and water spillage.

Containers / containers for storing small amounts of solvent must comply with European legislation on safety shutdown systems for children and a tactile warning of danger, when they are sold to the general public.
Do not incinerate empty containers, unless they have been cleaned with water.

Do not cut and weld near containers / tanks full or empty.

Product handling is not allowed in plastic containers, unlabeled and improvised containers.

Storage temperature - ambient

Store separately from oxidizing agents.

Compatibility regarding packaging

Materials suitable for containers or container linings: mild steel, stainless steel.

Unsuitable materials: Natural rubber, Buti, nitrile, neoprene, rubber, ethylene, propylene, polypropylene, polymers mecrlate, polystyrene, polyvinyl chloride, poly isobutylene.

7.3 Specific final use (specific final uses)

Polymerization solvent to obtain high density polyethylene and polypropylene, as a solvent in the food industry, in the tire industry.

EXPOSURE SCENARIOS:

1. Polymerization solvent to obtain high density polyethylene and polypropylene
Exposure scenarios : ES 9.1.1a processing -annex 1
ES 9.3.1a distribution-annex 2
2. Rubber processing - Exposure scenario : ES 9.13.1a -annex 3
3. Solvent in the food industry - Exposure scenario: ES 9.1.1a - annex 1

SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION**8.1 Control parameters****Occupational Exposure:**

Limit value (mg n Hexane /m³air):

At 8 h 170

Short period (15 min.): -

(acc. to GD 1218/2006)

8.2. Exposure controls

Periodic medical examination of the exposed workers; training regarding first-aid measures.

8.2.1 Appropriate technical controls

It is recommended to determinate the volatile organic compounds at the workplace with a device with the Photo ionization principle.

Product storage tanks must be completely sealed.

Installation of local and general ventilation to maintain vapour concentration below the maximum allowed limit.

Local exhaust ventilation is preferred because it prevents dispersion of pollutants in the work area, and captures it to source.

Mount Eyewash water sources in the work area and fast protection emergency showers.

8.2.2 Individual protection measures, also personal protective equipment

Individual Protective Measures: breathing apparatus, neoprene gloves, goggles, protective oil resistant clothing and footwear, no metallic accessories

Must comply with GD 1048/2006 regarding the minimum safety and health requirements for using by workers the personal protective equipment.

a)Eye/ face protection

Wear safety glass goggles or chemical eye protection goggles according to requirements regarding eye protection; avoid using the contact lenses at the workplace.

b) Skin protection

Avoid exposure to a charged with vapour atmosphere, without wearing the proper protective equipment: protective clothing 100% cotton, no metal accessories, antistatic safety shoes, neoprene gloves, mask with cartridge filter (breathing apparatus with cartridge filters), protective eyewear (goggles)

Street clothes shall be kept separately from work protective equipment and wash the contaminated ones before a new use.

c) Respiratory protection

Avoid prolonged exposure to the atmosphere charged with vapor without wearing protective equipment.

Use a suitable respirator filter apparatus with cartridge for organic vapor, or any complete insulating face mask. **Attention** respirators filtering apparatus do not protect workers in a oxygen-deficient atmosphere (below 18%).

Hygiene measures:

In working areas it is not allowed eating, drinking, smoking; after handling the preparation, before eating, drinking, smoking, use of toilet or cosmetics, ensure good hygiene;

8.2.3 Controls regarding environmental exposure:

Do not drain the product into ambient environment. Product is moderately toxic to marine life. See attached exposure scenarios.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 General information regarding the physical and chemical properties

- a) Aspect: colorless, transparent
b) Smell: Specific to oil products -solvent
c) The odor threshold of acceptance: no data
d) pH : no data
e) melting/ freezing point: na (not relevant for this category of products)
f) initial boiling point and boiling range: 66-70 °C SR EN ISO 3405-03
ASTM D 86-07a
g) flash point liquid <-6 SR EN ISO 13736-09
h) Evaporation rate nu sunt date
i) Flammability (solid, gas) not relevant. The product is liquid.
j) upper/ lower limit of flammability :
or explosion : 1,1 /5,4%vol (at 760mmHg and 20°C) literature
k) Vapour pressure 38,5 kPa ASTM D 5191/2007
SR EN 13016-1/2008
l) Vapour density : no data

-
- m) Relative density (at 15 ° C) 0.663 - 0.690g/cm ASTM D 1298-99(05)
ASTM D 4052-96(02)
SR EN ISO 3675-02
SR EN ISO 12185-03

- n) Water solubility – less then 1mg/l CONCAVE Documents
o) Partition coefficient n-octanol /water : -no data
p) Self-ignition temperature : >200 ° C CONCAVE Documents
q) Decomposition temperature: no data
r) Viscosity - at 40°C of < 7cSt CONCAVE Documents
s) Explosive properties - the product does not meet the criteria to be classified as explosive
t) Oxidant properties - does not act as an oxidising agent.

9.2. Other information- there are not

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	Components are not self-reactive, they don't react with water.
10.2. Chemical stability	Stable under normal temperature and pressure and in normal handling and storage conditions.
10.3 Possibility of hazardous reactions	Yes. With oxidising substances
10.4 Conditions to avoid	<ul style="list-style-type: none">- Storage in places without proper ventilation- Storage near heat and ignition sources- Contact with oxidizing substances;- Mechanical shocks that can lead to the formation of static electricity- Open flame- Avoid exposure to direct sunlight
10.5 Incompatible Materials	Reacts with the oxidizing materials (peroxides, nitrates, perchlorates).
10.6 Hazardous products from decomposition	From thermal decomposition are resulting carbon oxides, toxic fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

11.1.1 SUBSTANCES

11.1.1.1 Different classes of relevant hazards

a) Acute Toxicity:	The result of animal studies on determining the acute oral, dermal and inhalation toxicity, are the following: LD50 (Rat) oral = > 5 mg / kg body weight LC50 -(Rat) inhalation = > 5.2 mg / l LD50 (Rabbit) dermal = > 2 gm / kg body weight Data are obtained from tests made in the EU (information Concave)
b) Skin irritation	Moderate skin irritation (classified as irritant category 2) Tests were done on rabbit skin by 24 hours exposure and was observed a mild irritation, moderate / severe and can persist for up to 14 days. (Concave information)
c) severe damage / eye irritation	- Eye irritation is minimal, information based on tests performed on rabbits, observing in each case is a slight redness that disappears very quickly (Concave information)
d) respiratory and skin sensitization	- not cause sensitization, results obtained on studies conducted in the EU (information Concave)
e) Germ cell mutagenicity	No mutagenic effect - (the determined content of benzene is less than 0.1%, so there is no danger to germ cells). Studies have shown that there is no evidence of mutagenic activity of the product.
f) carcinogens	- Is not carcinogenic - (the determined content of benzene is less than 0.1%)
g) reproductive toxicity	In repeated dose, the product is toxic to fertility, because the content in n-hexane is exceeding 5%. (Concave information studies)
STOT (specific target organ toxicity) single-exposure	May cause narcosis / depression at high concentrations and long exposure time (Concave).

STOT (specific target organ toxicity), repeated exposure

There have been made studies on rats for periods between 10 days and 2 years, concerning the dermal effect and the inhalation of the product.

It consisted of a severe irritation of the skin, without systemic toxicity.

The content of light hydrocarbons, at repeated exposure, generates nephropathies.

Hazard by inhaling

Yes

SECTION 12 : ECOLOGICAL INFORMATION**12.1 Toxicity**

- Short-term toxicity test (Daphnia): EL50 (shrimp) 2.0 mg/l - Acute toxicity cat. 2(GHS), R51(EU)

- Long-term toxicity test (Daphnia) : NOEL (Daphnia, reproduction 21d) < 0.4 mg/l - chronic toxicity class 2 (GHS),R53(EU)

- Growth inhibition study on plants (algae): IL50 (algae) 1.1 mg/l
NOEL (algae 72h) <0.2-0.9 mg/l - Acute toxicity /chronic class 2 (GHS),R51/53(EU)

- Short-term toxicity testing on fish - LL50 (fat head minnow) 8.3 mg/l

Short-term acute toxicity class 2(GHS), R51(EU)

12.2 Persistence and degradability

degradation simulation tests in surface waters, suggest that it is biodegradable (based on the prediction)

12.3 Bioaccumulation Potential

BIOACCUMULATIVE (based on the prediction). Bioaccumulation in aquatic species, preferably over logKow values ranging from 3 to higher than 6, are considered potentially bioaccumulative

12.4 Mobility in soil

No information on potential mobility in soil.

12.5 Results of PBT and vPvB assessment:

The product is not classified vPvB and PBT.

12.6 Other adverse effects

They are not.

SECTION 13: DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

It is forbidden to discharge into the environment. Accidental leaks or spills, if they can not be recovered or recycled, it will be handled as hazardous waste.

Residues will be collected in a controlled manner. In case of accidental spills, use sand or sawdust. Subsequent destruction or disposal will be by incineration or hazardous waste landfills storing, in accordance with the rules and legal regulations on environmental protection.

Contaminated packaging:

packaging is considered hazardous waste and can be burned in specialized units

SECTION 14: TRANSPORT INFORMATION

14.1 ONU Number	1208 ONU
14.2 ONU proper shipping name	Hexane
14.3 Hazard Class(es) for transport	3
14.4 Packing Group	II
14.5 Hazard for the environment	YES

14.6 Special precautions for users:

Label

3

Tunnel restriction code

(D/E) requirement only ADR

The substance is transported in **tankers equipped with signal panels of danger and hazard labels in accordance with the requirements of RID / ADR / ADN R / IMDG (see Figure 1 and Figure 2)**. Tankers must be licensed for public road traffic of products in national / international transport, certificate of approval for the transport of this product and ADR training certificate.

Car tanks must be equipped with devices to prevent depression or over pressure in normal conditions of transport. These devices must be approved by the competent authority.

For transport use only tankers "for white products transport": LGBF code

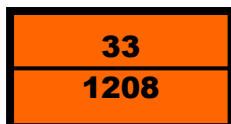


Fig.1



Fig 2

14.7 Transported in bulk in accordance with Annex II to MARPOL 73/78 and IBC code Not applicable

SECTION 15 : REGULATORY INFORMATION

15.1 Regulations / legislation on security, health and environment protection specific for the substance or mixture:

- GD. no. 1218/2006 - establishment of the minimum safety and health at work requirements for ensuring the protection of workers from risks related to chemical agents
- GD. 1048/2006 on the minimum safety and health requirements regarding the personal protective equipment for workers.
- Law 319/2006,
- Law 426/2001 on waste regime
- Occupational Medicine 2003
- GD 347/2003, Annex 1, P. 29
- GD 856/2002 on waste management records

15.2 Chemical Security Assessment-CONCAVE

SECTION 16: OTHER INFORMATION

16.1 Highlighting the information that has been added, deleted or modified:

All the sheet items were revised. Safety data sheet was prepared acc. to Regulation (EU) 453/2010
Replaces FDS 3V/ED8/Rev1/27.01.2010

16.2

Relevant Precautionary Statements List:

- P 233** : Keep container tightly closed.
- P240**: Ground / bond container and receiving equipment.
- P241**: Use explosion-proof electrical/ventilating/lighting/.../ equipment..
- P242**: Use only non-sparking tools.
- P243** : Take precautionary measures against static discharge.
- P 264** : Wash your hands thoroughly after use
- P 273**: Avoid release to the environment.

Relevant Precautionary Statements (intervention):

- P302+P352**: IF ON SKIN: Wash with plenty of soap and water.
- P332+P313**: If skin irritation or rash occurs: Get medical advice/attention.
- P362** : Take off contaminated clothing and wash before reuse
- P 370+P378**: In case of fire: Use chemical foam for extinguishing.
- P 391**: Collect spillage.
- P305+ P351 + P338**: IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary phrase. Elimination

- P501**: Dispose of contents / container in **the settled place for the hazardous waste storage.**

16.3 References:

Regulation (EC) 1272/2008 on the classification, labeling and packaging of substances mixtures, which modifies and amends Directives 67/548/EEC and 1999/45/EC

- Regulation 1907/2006
- Regulation 453/2010
- Directive 67/548/EEC of 27 June 1967, for Approximation of laws, rules and decisions relating to the classification, packaging and labeling of dangerous substances
- Directive 1999/45/EC on 31 May 1999 on the approximation of laws, rules and decisions of the ref to the classification, packaging and labeling of dangerous preparations
- Rules for international transport of dangerous goods by railway (RID)
- European Treaty for international road transport of dangerous goods (ADR)
- International Maritime Code for the Transport of Dangerous Goods (IMDG)
- European Treaty for international transport of dangerous goods by inland seas, rivers, streams (ADN)
- International Chemical Safety Data Sheets
- Directive 89/656/EEC establishing the minimum health and safety rules at work, the use of personal protective equipment at work
- Directive 89/391/EEC establishing measures to promote improved health and safety of workers
- ESIS - European chemical computerized system IUCLID Base - <http://ecb.jrc.ec.europa.eu/esis/>
- CONCAWE petroleum-Files - <http://www.concawe.org/>
- CONCAWE "Classification and labeling of petroleum, in accordance with European Directive on dangerous substances"
- Low boiling point naphtha - Concave documents
- Standard Specification

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The integrated quality-environment-health and safety management system is certified by Germanischer Lloyd Certification in accordance with the standards:

- SR EN ISO 9001:2008
- SR EN ISO 14001:2005
- OHSAS 18001:2008

Testing laboratory is accredited in accordance with RENAR SR EN ISO / IEC 17025: 2005

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ANEXA1 :9.1.1a. Exposure Scenario

Section 1 Exposure Scenario Title Low boiling point naphthas (Gasoline) that is <u>NOT</u> classified as R45, R46, R62 or R63; (containing less than 0.1% benzene)	
Title: Manufacture of substances	
Use Descriptor	
Sector(s) of Use	3, 8, 9
Process Categories	1, 2, 3, 4, 8a, 8b, 15
Environmental Release Categories	1, 4
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 within closed or contained systems. Includes incidental exposures during recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
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, vapour pressure > 10 kPa at STP OC5.
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) G13.
Amount 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	Not applicable
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 (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
CS15 General exposures (closed systems).	No other specific measures identified. EI20.
CS15 General exposures (closed systems) + CS56 With sample collection.	No other specific measures identified. EI20.
CS16 General exposures (open systems).	Provide extract ventilation to points where emissions occur. E54.
CS29 Mixing operations (closed systems).	No other specific measures identified. EI20.
CS2 Process sampling	No other specific measures identified. EI20.
CS36 Laboratory activities	Handle in a fume cupboard or under extract ventilation. E83.

CS14 Bulk transfers	No other specific measures identified. E120.
CS8 Drum/batch transfers	No other specific measures identified. E120.
CS5 Equipment maintenance	No other specific measures identified. E120.
CS67 Storage.	No other specific measures identified. E120.
Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3	
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)	1.87E7
Fraction of Regional tonnage used locally	0.032
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)	
	0.05
Release fraction to wastewater from process (initial release prior to RMM)	
	0.003
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	
Prevent discharge of undissolved substance to or recover from wastewater [TCR14]. Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation) [TCR1k]. Onsite wastewater treatment required [TCR13].	
Treat air emission to provide a typical removal efficiency of (%)	99.0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency \geq (%)	95.2
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%)	80.4
Organisation 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 (%)	
	95.5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	
	99.1
Maximum allowable site tonnage (M_{Safe}) (kg/d)	
	2.0e6

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 [ETW4].	
Conditions and measures related to external recovery of waste	
During manufacturing no waste of the substance is generated [ERW2].	
Additional information on the basis for the allocation of the indentified 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]. Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file in IUCLID section 13 – “Site-Specific Production” worksheet [DSU6]. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific safety assessment is required [DSU8]. Measured data have been used to demonstrate that the PETRORISK predicted fence-line concentrations in air are overestimated. These data support the conclusion that no refineries have RCRs>1 (Appendix 4 and PETRORISK file in IUCLID section 13 – "Site-Specific Production & Tier II worksheets")	

ANEXA2: 9.3.1a. Exposure Scenario
Section 1 Exposure Scenario Title Low boiling point naphthas (Gasoline) that is NOT classified as R45, R46, R62 or R63; (containing less than 0.1% benzene)

Title	
Distribution of substance	
Use Descriptor	
Sector(s) of Use	3
Process Categories	1, 2, 3, 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, vapour pressure > 10 kPa at STP OC5
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) G13
Amount 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	Not applicable
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 (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
CS15 General exposures (closed systems).	No other specific measures identified. E120 .
CS15 General exposures (closed systems). + CS56 With sample collection.	No other specific measures identified. E120 .
CS16 General exposures (open systems).	Provide extract ventilation to points where emissions occur. E54 .
CS2 Process sampling	No other specific measures identified. E120 .
CS36 Laboratory activities.	Handle in a fume cupboard or under extract ventilation. E83 .
CS501 Bulk closed	No other specific measures identified. E120 .

loading and unloading.	
CS6 Drum and small package filling	Fill containers/cans at dedicated fill points supplied with local extract ventilation. E51.
CS39 Equipment cleaning and maintenance	No other specific measures identified. EI20.
CS67 Storage.	No other specific measures identified. EI20.
Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3	
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)	1.87E7
Fraction of Regional tonnage used locally	0.002
Annual site tonnage (tonnes/year)	3.75E4
Maximum daily site tonnage (kg/day)	1.2E5
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)	0.001
Release fraction to wastewater from process (initial release prior to RMM)	0.00001
Release fraction to soil from process (initial release prior to RMM)	0.00001
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 inhalation) [TCR1k]. 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 \geq (%)	12
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%)	0
Organisation 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 (%)	95.5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	95.5
Maximum allowable site tonnage (M_{Safe}) (kg/d)	1.1E6

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 local and/or national regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].	
Additional information on the basis for the allocation of the indentified 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].	

ANEXA 3 : 9.13.1a. Exposure Scenario

Section 1 Exposure Scenario Title Low boiling point naphthas (Gasoline) that is NOT classified as R45, R46, R62 or R63; (containing less than 0.1% benzene)
Title

Rubber production and processing

Use Descriptor

Sector(s) of Use	3, 10, 11
Process Categories	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 13, 14, 15, 21
Environmental Release Categories	1, 4, 6d
Specific Environmental Release Category	ESVOC SpERC 4.19.v1

Processes, tasks, activities covered

Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber additives, calendaring, vulcanising, cooling and finishing as well as maintenance.

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, vapour pressure > 10 kPa at STP OC5
Concentration of substance in product	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	Not applicable
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 (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 Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. E4
CS15 General exposures (closed systems).	No other specific measures identified. EI20 .
CS3 Material transfers	Ensure material transfers are under containment or extract ventilation. E66 .
CS91 Bulk weighing	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. E60 .
CS90 Small scale weighing	Carry out in a vented booth. E57 .
CS92 Additive premixing	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. E60 .

CS64 Calendaring (including Banburys)	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. E60.
CS73 Pressing uncured rubber blanks	Provide extract ventilation to points where emissions occur. E54.
CS112 Rubber refreshing during article build up	Provide extract ventilation to points where emissions occur. E54.
CS70 Vulcanisation	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. E1.
CS71 Cooling cured articles	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. E60.
CS13 Manual applications e.g. brushing, rolling	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. E60.
CS113 Production of articles by dipping	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. E60.
CS102 Finishing operations	No other specific measures identified. E120.
CS36 Laboratory activities	Handle in a fume cupboard or under extract ventilation. E83.
CS5 Equipment maintenance	No other specific measures identified. E120.
CS67 Storage.	No other specific measures identified. E120.
Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 3	
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)	94
Fraction of Regional tonnage used locally	1
Annual site tonnage (tonnes/year)	94
Maximum daily site tonnage (kg/day)	4.7E3
Frequency and duration of use	
Continuous release [FD2].	
Emission days (days/year)	20
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)	0.003
Release fraction to wastewater from process (initial release prior to RMM)	0.01
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	
Prevent discharge of undissolved substance to or recover from wastewater [TCR14]. Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation)	

[TCR1k]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required	
[TCR9].	
Treat air emission to provide a typical removal efficiency of (%)	N/A
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency \geq (%)	23.9
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%)	0
Organisation 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 (%)	95.5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	95.5
Maximum allowable site tonnage (M_{Safe}) (kg/d)	4.2E4
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 local and/or national regulations [ETW3].	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1].	
Additional information on the basis for the allocation of the indentified 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].	



Rompetrol Refining S.A Constanta Working point - Vega Refinery
Company of the Rompetrol Group
Valeni Street, No 146 Ploiesti , Prahova
0244 / 406.110(144; 154) Fax: (40) 0244 / 406145 , 0244/514469
EMAIL OFFICE.RAFINARE@ROMPETROL.COM

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