



SAFETY DATA SHEET

VIRGIN NAPHTHA

Italiana Energia e Servizi S.p.A

DATE REVISED: 30/11/2010

1. IDENTIFICATION OF THE SUBSTANCE OR PREPARED MIXTURE AND OF THE COMPANY

1.1 Product identity

Substance name:	Virgin naphtha
Synonyms:	Virgin naphtha
CAS number	64742-49-0
CE number	265-151-9
Index number	649-328-00-1
Registration number	01-2119475133-43-XXXX
Chemical formula	This substance is a UVCB complex, and so a molecular formula cannot be given.
Molecular weight	This substance is a UVCB complex, and so a molecular formula cannot be given.

1.2 Pertinent uses identified for the substance or mixture and uses advised against

Common uses: Intermediate for refineries, raw material for petrochemical plants

Uses identified in the chemical safety report: General list of applications:

- *Industrial Use:* Production of the substance, use as intermediate, distribution of the substance, formulation and (re)packaging of substances and mixtures.
- *Professional use:* None
- *Consumer:* none

See section 16 for further information on the uses identified (Appendix 1).

Uses advised against: The pertinent uses are listed above. Other uses are advised against unless the use is evaluated before being implemented, and it is shown that the risks connected with that use are controlled.

1.3 Information on the safety data sheet provider:

<i>Company name</i>	IES - ITALIANA ENERGIA E SERVIZI S.p.A.
<i>Address</i>	Strada Cipata, 79 (Loc. Frassino)
<i>City / Country</i>	46100 Mantua (Italy)
<i>Telephone</i>	+39.0376.3781 (24 h)
<i>E-mail Competent Technician</i>	segreteria.direz@iesitaliana.it

1.4 Emergency telephone number:

+39.0376.3781 (24 h)

2. IDENTIFICATION OF DANGERS

Physical-chemical dangers: This substance is extremely inflammable.

Health hazards: The mixture has irritating effects on the skin. Inhaling the fumes may cause drowsiness and vertigo. Due to its low viscosity the product can be inhaled into the lungs immediately after ingestion or later in case of spontaneous or provoked vomiting, and if this occurs chemical pneumonia may arise. It may cause neoplastic effects. It may reduce infertility and be harmful to a foetus.

Dangers to the environment: The substance has toxic effects on aquatic organisms and long-term effects on the aquatic environment.

2.1 Classification of the substance or mixture

Classifications in terms of (CE) Regulation 1272/2008 (CLP/GHS)

Flam. Liquid 1: H224
Asp. Tox. 1: H304
Skin Irrit. 2: H315
STOT Single Exp. 3: H336
Muta. 1B: H340
Carc. 1B: H350
Repr. 2: H361 d-f
Aquatic Chronic 2: H411



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2.1.2 Classifications in terms of Directive 67/548/CEE and subsequent amendments and additions

F+ R12

Xi; R38

Carc. Cat. 2; R45

Muta Cat 2; R46

Repr. Cat. 3; R62-63

Xn R65;

R67

N; R51-53

A list of the extended R and H phrases is given in Section 16.

2.2 Elements of labelling



Warning: DANGER

Danger indications:

H224:	Highly flammable liquid and vapours
H304:	Can be lethal in case of ingestion and penetration of the respiratory tracts
H315:	Causes skin irritation
H336:	Can cause drowsiness or dizziness
H340:	Can cause genetic changes
H350:	Can cause cancer
H361 d:	Suspected to be harmful to foetuses
H361 f:	Suspected to be harmful to fertility
H411:	Toxic for aquatic organisms with long-term effects

Precautionary advice

Prevention:

P201:	Obtain specific instructions before use
P210:	Keep away from heat/sparks/open flames/hot surfaces - No smoking
P280:	Wear gloves/protective clothing/Protect the eyes/face

Reaction

P301+310:	IN CASE OF INGESTION: immediately contact a POISON UNIT or a physician
P331	Do not provoke vomiting

Conservation:

P403+233:	Keep the receptacle tightly closed in a well ventilated place
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Disposal

P501:	Dispose of the product/receptacle in conformity to Legislative Decree 152/06 and subsequent amendments and additions
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Other information: H P Notes

2.3 Other dangers

The fumes mix with air and become inflammable and explosive. The fumes are heavier than air: they can build up in confined spaces or depressions and spread at ground level, and can create risks of fire and explosion even at a distance. In some circumstances the product can accumulate significantly strong static electricity charges, with the risk of sparks that can detonate fires or explosions. The product does not satisfy the criteria for PBT or vPvB classification according to appendix XIII of REACH.



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3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

UVCB Substance: Slightly hydrotreated naphtha (petroleum) ("A complex combination of hydrocarbons obtained by treating a part of the petroleum with hydrogen in the presence of a catalyser. It is made up mainly of hydrocarbons with carbon numbers prevalently in the C4 and C11 range, with a boiling point approximately in the 20°C - 190°C range).

CAS 64742-49-0 / EINECS 265-151-9, INDEX N° 649-328-00-1, Registration n°: 01-2119475133-43-XXXX

Concentration: 100 % by weight

(CE) Regulation 1272/2008 Classification (CLP):

Flam. Liquid 1 H224

Asp. Tox. 1 H304

Skin Irrit. 2 H315

STOT Single Exp. 3 H336

Muta. 1B H340

Carc. 1B H350

Repr. 2 H361 d-f

Aquatic Chronic 2 H411

Directive 67/548/CEE Classification

F+; R12

Xi; R38

Carc. Cat. 2; R45

Muta. Cat. 2; R46

Repr. Cat. 3; R62-63

Xn; R65:

R67

N; R51/53

Various chemical compounds can be identified, depending on the characteristics and origin of the components, and the final chemical composition of the naphtha. These compounds are added deliberately. The most important for classification purposes are indicated below.

Note: the classification of the "Naphtha (petrol) with a low boiling point" is attributed in relation to the worst case (content of the individual components all above the specific classification limits).

This UVCB substance contains the following components:

a) Benzene: CAS 71-43-2 EINECS 200-753-7 INDEX N° 601-020-00-8 (concentration > 0,1 % by weight)

(CE) Regulation 1272/2008 Classification (CLP):

Flam. Liq. 2 H225

Carc. 1A H350

Muta.1B H340

STOT RE 1 H372

Asp.Tox.1. H304

Eye.Irrit.2 H319

Skin.Irrit.2 H315

Directive 67/548/CEE Classification

F; R11

Carc. Cat. 1; R45

Muta. Cat. 2; R46

T; R48/23/24/25

Xn; R65

Xi; R36/38

b) Toluene : CAS 108-88-3 EINECS 203-625-9 INDEX N° 601-021-00-3 (concentration > 3 % by weight)

(CE) Regulation 1272/2008 Classification (CLP):

Flam. Liq. 2 H225

Repr.2 H361d

STOT RE 2 H373

Asp.Tox.1. H304

Eye.Irrit.2 H319



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Skin.Irrit.2 H315

Directive 67/548/CEE Classification

F; R11

Repr. Cat. 3; R63

Xn; R48/20-65

Xi; R38

R67

- c) n-hexane CAS 110-54-3 EINECS 203-777-6 INDEX N° 601-037-00-0 (concentration > 3 % by weight)

(CE) Regulation 1272/2008 Classification (CLP):

Flam.Liq.2 H225

Repr.2 H361f

Asp.Tox.1 H304

Skin Irrit.2 H315

STOT RE 3 Cat 2 H373

STOT SE 3 H336

Aquatic Chronic 1 H411

Directive 67/548/CEE Classification

F; R11

Repr. Cat. 3; R62

Xn; R65-48/20

Xi; R38

R67

N; R51-53

A list of the extended R and H phrases is given in Section 16.

3.2 Mixtures

n.a.

4. FIRST AID MEASURES

4.1 Description of first aid measures

Contact with the eyes: Rinse gently with water for a few minutes, if worn remove contact lenses if the situation makes it possible to do so easily. If irritation, blurred vision or swelling occurs and persists, obtain medical advice from a specialist.

Contact with the skin: Remove contaminated clothing, contaminated footwear and dispose of them safely. Wash affected area with soap and water. If irritation, swelling or flushing occurs, obtain medical advice from a specialist.

For minor thermal burns, cool the burnt part. Hold the burnt area under cold running water for at least five minutes, or until the pain subsides. Body hypothermia must be avoided.

When using high-pressure equipment, injection of the product can occur. If high-pressure injuries occur, immediately seek professional medical attention. Do not wait for symptoms to develop.

Ingestion/aspiration: Do not induce vomiting as there is high risk of aspiration. Do not give anything by mouth to an unconscious person.

If spontaneous vomiting occurs, keep the head down to avoid any risk of aspirating the vomit into the lungs.

Inhalation: If breathing is difficult, move the victim to the open air and keep at rest in a position comfortable for breathing.

If the victim is unconscious and is not breathing, check that there is nothing obstructing respiration and get a specialised person to apply artificial respiration. If necessary, give external cardiac massage and obtain medical advice.

If the victim is breathing, keep them on their side in a safe position. Administer oxygen if necessary.

4.2 Principal symptoms and effects, both acute and delayed

Can cause skin irritation and slight eye irritation. Inhalation of vapours may cause headache, nausea, vomiting and an altered state of consciousness. In case of ingestion few or no symptoms are expected (700). If any, nausea and diarrhoea might occur.



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4.3 Indication of possible need to immediately consult a physician and special treatment

in case of ingestion, always assume that aspiration has occurred. immediately transfer the victim to hospital. Do not wait for symptoms to develop.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing means

Small size fires: earth or sand, carbon dioxide, foam, or dry chemical powder.

Large size fires: foam, atomised water. Note: the use of a diffused water jet (atomised water) is reserved to specifically trained personnel. Other inert gases (subject to regulations).

Unsuitable extinguishing means Do not use water jets aimed at the product that is burning, as this may cause splashing and spread the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2 Special dangers arising from the substance or mixture

Incomplete combustion could generate a complex mixture of solid and liquid particles dispersed in the air and gas, including CO (carbon monoxide), SO_x (sulphur oxides), or H₂SO₄ (sulphuric acid), and unidentified organic and inorganic compounds.

5.3 Recommendations for those extinguishing the fires

In case of a large fire or in confined or poorly ventilated spaces, wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. MEASURES IN CASE OF ACCIDENTAL RELEASE

6.1 Personal precautions, protective equipment, and procedures in case of emergency

Stop or contain leak at the source, if safe to do so. Avoid direct contact with released material. Stay upwind. In case of large spillages, alert occupants in downwind areas. Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Excepting for cases of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency. Eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares). If required, notify relevant authorities according to all applicable regulations.

Small spillages: Normal antistatic working clothes are usually adequate.

Large spillages: full body suit of chemically resistant and antistatic material. Work gloves providing adequate chemical resistance, specifically to aromatic hydrocarbons. Gloves made of PVA (polyvinyl alcohol) are not water-resistant, and are not suitable for emergency use. Work helmet. Anti-static and non-slip safety shoes or boots that are resistant to the chemical agents. Goggles and /or face shield, if splashes or contact with eyes is possible or anticipated. Respiratory protection: A half or full-face respirator with an organic vapour filter(s), or a Self-Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and foreseeable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBAs should be used.

6.2 Environmental precautions

Prevent product from entering sewers, rivers or other bodies of water.

6.3 Methods and materials for containment and cleaning up

Spilling on the ground: If necessary contain the product with dry earth, sand or similar non-combustible materials. Large spillages may be carefully covered with foam, if available, to limit fire risk. Do not use direct jets. When inside buildings or confined spaces, ensure adequate ventilation. Absorb spilled product with suitable non-combustible materials. If it is necessary to store any contaminated materials for safe disposal, only suitable containers (airtight, labelled, sealed, waterproof, earthed and bonded) should be used. In case of soil contamination, remove contaminated soil and treat in accordance with local regulations.

Spilling in water: In case of small spillages in closed waters (e.g. ports), contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbent materials. Large spillages: if possible, contain larger spillages in water using floating barriers or other mechanical means only if this is strictly necessary and if the risk of fire and explosion can be adequately controlled, otherwise leave the product to evaporate and disperse naturally. The use of dispersants should be advised by an expert, and, if required, approved by local authorities. If possible, collect the product and contaminated materials with mechanical means, and store/dispose of according to relevant regulations.

recommended measures are based on the most likely spillage scenarios for this material. Local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions.



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6.4 Reference to other sections

For more information regarding personal protective equipment see section " Exposure control/personal protection".

6.5 Other information

No other information is available.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Protective measures

Obtain special instructions before use. Risk of explosive mixtures of vapour and air. Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products, are followed.

Take precautionary measures against static electricity. Ensure earthing of containers, tanks and transfer/receiving equipment. The vapour is heavier than air. Be particularly careful of accumulation in pits and confined spaces. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Use only bottom loading of tanks, in compliance with European legislation. Do not use compressed air for filling, discharging, or handling operations. Avoid contact with skin and eyes. Do not ingest. Do not breathe vapours.

The product may release H₂S (hydrogen sulphide): a specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances.

Use and store only outdoors or in a well-ventilated area. Avoid contact with the product. Use adequate personal protective equipment as needed.

Avoid releasing into the environment. For more information regarding personal protective equipment and operational conditions see Exposure scenarios.

7.1.2 Indications regarding health in the workplace

Do not inhale the mist / fumes / aerosols Avoid contact with skin. Keep away from food and beverages. Do not eat, drink or smoke when using this product. Wash the hands thoroughly after handling. Do not use contaminated clothing again.

7.2 Conditions for safe storage, including any incompatibility

Storage area layout, tank design, equipment and operating procedures must comply with the relevant European, national or local legislation. Storage installations should be designed with adequate means to prevent ground and water pollution in case of leaks or spills. Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations, only after cleaning up the tank. Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content and flammability. Store separately from oxidising agents.

Recommended materials: for containers, or container linings use mild steel or stainless steel. Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Check compatibility with the manufacturer in relation to usage conditions.

If the product is supplied in containers, only store it in the original container or a container that is suitable for the type of product. Store in a well-ventilated place.

Keep containers tightly closed and properly labelled. Protect from sunlight.

Light hydrocarbon vapours can build up in the headspace of containers. These can cause a danger of fire or explosion. Open slowly in order to control possible pressure release. Empty containers may contain combustible product residues. Do not weld, solder, drill, cut or incinerate empty containers, unless they have been properly cleaned.

7.3 Specific end uses

See the enclosed exposure scenarios.

8. CHECKING EXPOSURE / PERSONAL PROTECTION

8.1 Checking parameters

Limit exposure values (components of the substance)

PETROL

ACGIH 2010:

TLV®-TWA: 300 ppm



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TLV®-STEL: 500 ppm

BENZENE

Legislative Decree 81/08 and subsequent amendments and additions

Limit values (8 hours): 1 ppm

ACGIH 2010:

TLV®-TWA: 0.5 ppm

TLV®-STEL: 2.5 ppm

N-HEXANE

Legislative Decree 81/08 and subsequent amendments and additions

Limit values (8 hours): 20 ppm

ACGIH 2010:

TLV®-TWA: 50 ppm

TOLUENE

Legislative Decree 81/08 and subsequent amendments and additions

Limit values (8 hours): 20 ppm

ACGIH 2010:

TLV®-TWA: 20 ppm

Exposure limit values (atmospheric pollutants)

n.a.

Monitoring procedures: see Legislative Decree 81/2008 and subsequent amendments and additions or good practice for industrial hygiene.

Biological limit values (IBE)

BENZENE

IBE: Mercapturic S-Phenyl acid in the urine 25 µg/g creatinine; Trans acid, trans muconic in urine 500 µg/g creatinine

DNEL (Derived Non Effect Level)

PETROL:

Means of exposure	DNEL Workers				DNEL General population			
	Chronic, local effects	Chronic, systemic effects	Acute, local effects	Acute, systemic effects	Chronic, local effects	Chronic, systemic effects	Acute, local effects	Acute, systemic effects
oral	n.a.	n.a.	n.a.	n.a.	n.a.	Note (a) (c)	n.a.	n.a.
dermal	Note (c)	Note (a) (b)	Note (c)	Note (a) (b)	Note (c)	Note (a) (b)	Note (a)	Note (a) (b)
inhalation	840 mg/m ³ /8 ore	Note (a) (b)	1100 mg/m ³ /15 min	1300 mg/m ³ /15 min	180 mg/m ³ /8 ore	Note (a) (b)	640 mg/m ³ /15 min	1200 mg/m ³ /15min

Note (a): If the concentration of benzene in the air is sufficiently high, a DMEL-workers-inhalation for benzene of 1 ppm must be taken into consideration. If dermal exposure is suspected, a reference dermal value for workers of 23,4 mg of benzene / kg / day must be taken into consideration.

Note (b): No danger has been identified for this means of exposure.

Note (c): The data available does not make it possible to estimate a DMEL.

DMEL (Derived Minimum Effect Level)

Not identified because sufficient dosage descriptors are not available.

PNEC(S) (Predicted Non Effect Concentration)

See the enclosed exposure scenarios.

8.2 Exposure checks

8.2.1 Suitable technical checks

Minimise exposure to mists/fumes/aerosols. Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content and the presence and degree of inflammability.



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8.2.2 Personal protection measures

(a) Eye / face protection

In the absence of containment systems and where there is a risk of contact with the eyes/face, wear protection for the head and face (visor and/or protective goggles (EN 166).

(b) Skin protection:

i) Hand protection

In the absence of containment systems and where there is a danger of contact with the skin, use gloves with wrist bands that are highly resistance to hydrocarbons and have felt on the inside. Presumably adequate materials: nitrile, PVC or PVA (polyvinyl alcohol) with a protective index for chemical agents of at least 5 (permeation time > 240 minutes). Use the gloves according to the conditions and within the limits set by the manufacturer. If necessary, refer to the UNI EN 374 standard. Gloves must be periodically inspected and changed in case of wear, perforations or contaminations.

ii) Other

If clothing gets contaminated change it and clean it immediately.

(c) Respiratory protection

In confined spaces:

Use appropriate protective devices for the respiratory tract: full-face masks fitted with an AX type filter cartridge (brown for organic vapours with a low boiling point). If exposure levels cannot be determined or estimated with adequate confidence, or an oxygen deficiency is possible, only SCBA's should be used (EN 529).

In absence of a containment system:

Use appropriate protective devices for the respiratory tract: full-face masks fitted with an AX type filter cartridge (brown for organic vapours with a low boiling point).

(d) Thermal dangers: See letter b) above.



8.2.3 Environmental exposure checks

Avoid releasing into the environment. Storage installations should be designed with adequate means to prevent ground and water pollution in case of leaks or spills.

Treatment of waste water is required.

Prevent the release of undissolved substances or recover them from waste water.

Do not apply industrial sludge to natural soils.

Sludge generated by treating industrial waters must be incinerated, contained or treated. For further details, see the enclosed exposure scenarios.

8.3 Other

For additional information regarding personal protective equipment and operational conditions see Exposure scenarios.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on fundamental physical and chemical properties

a) Appearance	clear colourless liquid
b) Odour	pungent
c) Olfactory threshold	n.d.
d) pH	n.a.
e) Melting point / freezing point	< 60°C
f) Initial boiling point and boiling interval	from 25 to 130°C (ISO 3405)
g) Flash point	< - 40°C (EN ISO 13736)
h) Evaporation rate	n.a.
i) Inflammability (solids, gases)	n.a.



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j) Upper / lower flammability or explosiveness limits	LEL 1,4%; UEL 7,6%
k) Vapour tension	4-240 kPa at 37,8°C (EN 13016-1)
l) Vapour density	n.a.
m) Density	680-720 kg/m ³ at 15 ° C (ASTM D-1298)
n) Solubility	Solubility in water not applicable as this is a UVCB substance.
o) N-octanol / water breakdown coefficient	Not applicable because this is a UVCB substance
p) Spontaneous ignition temperature	>280°C
q) Decomposition temperature	n.a.
r) Viscosity	< 1 mm ² /s at 37,8°C
s) Explosive properties	No chemical group can be associated with the molecule with explosive properties
t) Oxidant properties	Not necessary (column 2 of REACH in appendix VII).

9.2 Other information

Not included.

10. STABILITY AND REACTIVITY

10.1 Reactivity

The substance does not present further dangers related to reactivity other than those indicated in the sub-sections that follow.

10.2 Chemical stability

This substance is stable in relation to its intrinsic properties.

10.3 Possibility of dangerous reactions

Contact with strong oxidants (such as peroxides or chromates) can cause a danger of fire. A mixture with nitrates or other strong oxidants (such as chlorates, perchlorates, and liquid oxygen) can generate an explosive mass. The sensitivity to heat, friction and shock cannot be evaluated beforehand.

10.4 Conditions to be avoided

Store separately from oxidising agents.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Avoid static electrical charges forming.

10.5 Incompatible materials

Strong oxidants.

10.6 Dangerous products of decomposition

The substance does not decompose when used for the intended purposes.

11. TOXICOLOGICAL INFORMATION

11.1 Toxicokinetics, metabolism and distribution

No experimental data is available on absorption, distribution, metabolism and elimination of the product as a whole, but numerous toxicokinetic studies are available on the principal constituents. Most of the constituents are absorbed by inhalation. Absorption by inhalation is directly proportional to the molecular weight of the constituents, and so the n-paraffins are absorbed more than the iso paraffins, and the aromatics are absorbed more than the corresponding paraffins. The constituents with a low molecular weight (butane and pentane) are poorly absorbed because they are exhaled. The metabolism of the molecules absorbed is similar to that of the alcohols, with excretion via the kidneys. Cutaneous absorption of the components in the vapour phase is limited and is around 1% of total absorption by inhalation. Cutaneous absorption of liquid components is also very low because they evaporate quickly.

Most of the components are absorbed by the gastrointestinal tract.



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11.2 Toxicological information

a) Acute toxicity:

Although the product is dangerous if aspirated into the lungs and causes a serious drop in the SNC in case of prolonged exposure, studies on the acute toxicity of naphtha orally, cutaneously, and by inhalation did not highlight effects in the conditions defined by the test protocols according to the regulation on hazardous substances. Therefore the results do not point to any classification in terms of the standard on hazardous substances.

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
By mouth			
RAT Oral (gavage) OECD Guideline 401	DL50:>5000 mg/kg (M/F)	Key study Reliable without restrictions CAS 86290-81-5	UBTL Inc (1986a)
By inhalation			
RAT Inhalation of vapours OECD Guideline 403	LC50:>5610 mg/m ³ (M/F)	Key study Reliable without restrictions CAS 86290-81-5	UBTL Inc (1992g)
Via the skin			
RABBIT OECD Guideline 402	DL50: >2000 (M/F)	Key study Reliable with restrictions CAS 86290-81-5	UBTL Inc (1986d)

b) Corrosion / skin irritation

The potential for skin irritation of the samples that belong to this product's category was tested in a large number of studies, generally carried out on rabbits. The conclusions of these studies indicate that petrol is a skin irritant without evidence of deep injuries (corrosion). These results therefore indicate classification of the substance as Xi; R38 (Irritant for the skin) and Skin Irrit. 2 H315 (Causes skin irritation).

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
RABBIT Occlusive treatment for 24/48/72 hours OECD Guideline 404	Irritant Average erythema score: 2,56	Key study Reliable without restrictions CAS 86290-81-5	American Petroleum Institute (API) 1995

c) Serious eye injury / serious eye irritation

The potential for skin irritation of the samples that belong to this product's category was tested in a large number of studies, generally carried out on rabbits. The conclusions of these studies indicate a potential for moderate eye irritation associated with exposure to vapours at a concentration exceeding 200 ppm, however, the dosage-response information is not conclusive.

These results do not point to any classification in terms of the standard on hazardous substances.

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
RABBIT Occlusive treatment for 24/48/72 hours OECD Guideline 405	Non irritant Average conjunctival score: 0,06	Key study Reliable without restrictions CAS 86290-81-5	UBTL Inc (1985a)

d) Respiratory or skin sensitisation

Respiratory sensitisation

This endpoint is not a REACH requirement. The products that belong to the naphtha category do not cause sensitisation of the respiratory tract and so no classification of the substance is necessary.

Skin sensitisation

Various skin sensitisation studies have been carried out on naphtha (appendix V method B.6 (sensitisation of the skin); Buehler method).

The results obtained from these studies indicate the absence of potential skin sensitisation and so no classification of the substance is necessary.

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
GUINEA PIG	Non sensitising	Key study	UBTL Inc (1990i)



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Guideline 406		Reliable without restrictions CAS 86290-81-5	
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e) Mutagenicity of germinal cells

The mutagen potential of naphtha has been amply studied in a series of live and in vitro tests. Most of the studies did not show coherent proof of mutagen activity. The classification as a mutagen is attributed due to the presence of benzene in $C>0,1\%$. Muta Cat 2; R46 (can cause hereditary genetic alterations) and Muta 1 B H340 (can cause hereditary genetic alterations).

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
In vitro gene mutation in Salmonella thyphimurium OECD TG 471	Negative	Key study Reliable without restrictions CAS 86290-81-5	American Petroleum Institute (API) 1977
Live, chromosome aberration RAT OECD TG 471	Negative	Key study Reliable without restrictions CAS 86290-81-5	American Petroleum Institute (API) 1977

f) Cancerogenicity

Most of the studies carried out on animals with the vaporised product showed an increased incidence of tumour at a hepatic level. However, the vapourised product contains the most heavy aromatic components, responsible for tumours arising that are not present in the vapour phase to which man is normally exposed. Carcinogenesis studies carried out on naphtha are not sufficient to support classification as a carcinogenic, which is however attributed due to the presence of benzene in $C>0,1\%$. Cl Carc. Cat. 2; R45 (can cause cancer) and Carc. 1B H350 (can cause cancer).

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
Via the skin			
MOUSE OECD Guideline 451 Exposure for 102 weeks (3 times a week)	NOAEL (carcinogenicity) 0,05 ml male No neoplastic effect observed	Key study Reliable without restrictions CAS 86290-81-5	American Petroleum Institute (1983b)

NOTE: Cancerogenicity orally is not an endpoint required by REACH.

g) Toxicity for reproduction

Toxicity for reproduction

Most of the studies did not show coherent proof of toxicity for fertility. Classification as a danger to fertility is attributed due to the presence of the n-hexane in $C>3\%$ (Repr. Cat. 3.; R62 - possible risk of reduced fertility and Repr. 2: H361 (suspected of harming fertility or the foetus).

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
RAT Doses: 5090, 12490, 24690 mg/m ³ OECD Guideline 421 Inhalation of vapours	NOAEL 24700 mg/m ³ (M/F)	Key study Reliable without restrictions CAS 64741-66-8	Bui Q.Q., Burnett D.M., Breglia R.J., Koschier F.J., Lapadula E.S. (1998)

Toxicity for development / teratogenesis

Most of the studies did not show coherent proof of toxicity for a foetus. Classification as a teratogen (Repr. Cat. 3.; R63-possible risk of damage to unborn children and Repr. 2: H361 - suspected of harming fertility or the foetus) is attributed due to the presence of the toluene in $C>3\%$.

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
RAT Doses: 2653, 7960, 23900 mg/m ³ OECD Guideline 414 (Prenatal developmental toxicity study) Inhalation of vapours	NOAEL 23900 mg/m ³ no adverse effect	Key study Reliable without restrictions	L.Roberts, R White, Q. Bui. W.Daughtrey, F.Koschier, S.Rodney (2001)

h) Specific toxicity for target organs (STOT) - single exposure

Petrol is classified R67 (inhalation of the fumes can cause drowsiness and vertigo) and STOT SE 3 H336 (can cause drowsiness and vertigo).



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i) Specific toxicity for target organs (STOT) - repeated exposure:

Oral: No information in the registration dossier

Inhalation: At very high doses 20,000 -30,000 mg/m³, only some studies showed some slight effect such as variations in body weight, variation in the weight of organs, and variations in haematological parameters.

Cutaneous: The studies show a low potential for systemic toxicity.

No classification envisaged by the standard for hazardous substances.

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
Oral			
RAT Subacute (gavage) 500 mg/kg/day 500 mg/kg/day 28 days / 1 time per day for 5 days a week	NOAEL < 500mg/kg (male): specific renal effects in male rats not considered of biological relevance for man.	Support study Reliable with restrictions CAS 64741-63-5	Halder CA et al. 1985
Inhalation			
RAT Systemic effects (M/F) Inhalation (vapour) Doses repeated 28 days OECD 412	NOAEC: 9840 mg/m ³ specific renal effects in male rats not considered of biological relevance for man.	Key study Reliable without restrictions CAS 86290-81-5	ARCO 1993 (Atlantic Richfield Company)
RAT Local/systemic effects (M/F) Inhalation (vapour) Doses repeated 90 days OECD TG 413	NOAEC (local effects): 10000 mg/m ³ reddish nasal secretions (Males/females) specific renal effects in male rats not considered of biological relevance for man. NOAEC (systemic effects): 20000 mg/m ³ specific renal effects in male rats not considered of biological relevance for man.	Key study Reliable without restrictions	EPA 2005
Cutaneous			
OECD Guideline 410 (21/28-days)	NOAEL (systemic effects): 3750 mg/m ³	Key study Reliable with restrictions CAS 86290-81-5	UBTL, Inc. 1985

j) Aspiration period

Since petrol has a viscosity of less than 1 mm²/sec at 37,8°C it is possible that the product could be aspirated into the lungs, according to the classification criteria contained in appendix VI of Directive 67/548/CEE amended by Directive 2006/121/CE and the criteria contained in appendix /, part 3 of Regulation 1272/2008.

The product can therefore be classified Xn R65 (Harmful: may cause lung damage in case of ingestion) and Asp. Tox. 1 H304 (Can be lethal in case of ingestion and penetration of the respiratory tracts).

Other information

No other information is available.

12. ECOLOGICAL INFORMATION

On the basis of the ecological information given below, for toxicity for invertebrates and algae and in terms of the criteria indicated in the standard for hazardous substances, naphtha is classified as dangerous for the environment N; R51-53 of Aquatic Chronic 2 H411.

12.1 Toxicity

A summary of the most representative studies in the registration dossier is given below.

Endpoint	Result	Comments
Aquatic toxicity		
Invertebrates Daphnia magna Short-term	EL50 48/hours: 4,5 mg/lit NOELR 48/hours: 0,5 mg/lit	Key study Exxon Biomedical Sciences, Inc. 1995 Reliable without restrictions OECD Guideline 202



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Endpoint	Result	Comments
Aquatic toxicity		
Invertebrates Daphnia magna Long-term	NOELR 21/days: 2,6 mg/lit LL50 21/days: 10 mg/lit	Key study Exxon Biomedical Sciences, Inc., East Millstone, NJ 1995 Reliable without restrictions OECD Guideline 211
Algae Short-term Selenastrum capricornutum	EL50 72/hours: 3,1 mg/lit EC50 96/hours: 3,7 mg/lit NOELR 72/hours: 0,5 mg/lit	Key study Exxon Biomedical Sciences, Inc., East Millstone, NJ 1995 Reliable without restrictions OECD Guideline 201
Fish Short-term	LC50 48/hours: 5,4 mg/lit	Support study CAS 86290-81-5 Lockhart WL, Danell RW and Murray DAJ 1987 Reliable with restrictions OECD Guideline 203
Fish Short-term Pimephales promelas	LL50 96/hours: 8,2	Key study CAS 64741-66-8 Petroleum Product Stewardship Council (PPSC) 1995 Reliable without restrictions Method ASTM ET29-88a
Fish Long-term Pimephales promelas	NOELR 14/days: 2,6 mg/lit LL50 14/days: 5,2	Support study CAS 64741-55-5 Springborn Laboratories, Inc. 1999 Reliable with restrictions OECD Guideline 204
Micro-organisms Tetrahymena pyriformis	EC50 40/hours: 15,41 mg/lit	Key study Redman, A. et al. 2010 Reliable with restrictions QSAR modelled data

12.2 Persistence and degradability

Abiotic degradability

Hydrolysis: Naphtha is resistant to hydrolysis due to a lack of a functional group that is hydrolytically reactive. Therefore, this process will not contribute to a measurable loss of degradation of the substance in the environment.

Photolysis in the air: Endpoint not required by REACH

Photolysis in water and soil: Endpoint not required by REACH

Biotic degradability

Water / sediment / soil: The standard tests for this endpoint are not applicable to UVCB substances.

12.3 Bioaccumulation potential

The standard tests for this endpoint are not applicable to UVCB substances.

12.4 Mobility in the ground

Koc absorption: The standard tests for this endpoint are not applicable to UVCB substances.

12.5 Results of PBT and vPvB evaluation

Comparison with the criteria laid down in appendix XIII of the REACH Regulation.

Persistence evaluation: some hydrocarbon structures included in this category present P (persistent) or vP (very Persistent) characteristics.

Evaluation of bioaccumulation potential: the structure of most of the hydrocarbons included in this category DO NOT present vB (very Bioaccumulative) characteristics, although some components do present B (Bioaccumulative) characteristics.

Evaluation of toxicity: for the structures that showed P and B characteristics, the toxicity was evaluated but no relevant component satisfies the toxicity criteria with the exception of anthracene which was confirmed to be a PBT. Since the anthracene is included in concentrations < 0,1% the product is not PBT/vPvB.

12.6 Other harmful effects

Not included.



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13. COMMENTS ON DISPOSAL

13.1 Waste treatment methods

Do not discharge onto the ground, into sewers, culverts, or water courses.

For disposal of the waste derived from this product, including non depolluted empty containers, comply with Legislative Decree 152/06 and subsequent amendments and additions

European Waste Catalogue Code: 13 07 02 (Ref: 2001/118/CE and Dir. of the Min. of the Environment 9/04/2002). The code indication only provides a general indication based in the original composition of the product and the intended uses).

The user (waste producer) is responsible for choosing the most adequate code on the basis of the effective use of the product, any alterations, and pollution. The product as is does not contain halogenated compounds.

Disposal of containers: Do not throw the containers away in the environment. Dispose of them according to local regulations.

Do not puncture, grind, weld, braze, burn, or incinerate the containers or empty drums that have not been depolluted.

14. INFORMATION ON TRANSPORTATION

14.1 UNO Number

1268

14.2 UNO transportation name

Distillates of petroleum, N.A.S.

14.3 Danger classes connected with transportation:

Road / rail transport (ADR/RID/ADN): Class 3

Classification code: F1

Danger labels: 3 + material dangerous for the environment

Danger identification number: 33

Sea transport (IMDG): Class 3

Air transport (IATA): Class 3, flammable liquid

14.4 Packaging groups:

II, Label 3 + Environmental danger mark

14.5 Danger to the environment:

Substances dangerous to the environment in terms of codes ADR, RID, ADN and IMDG.

14.6 Special precautions for users:

Ensure material transfers are under containment or extract ventilation (E66).

14.7 Bulk transportation according to appendix II of MARPOL 73/78 and the IBC code

If you intend effecting bulk transportation, comply with appendix II of MARPOL 73/78 and the IBC code, where applicable.

14.8 Other

Tunnel restriction code (ADR): D/E

15. INFORMATION ON REGULATION

15.1 Specific health, safety, and environmental regulations and legislation for the substance or mixture

Authorisation in terms of the REACH Regulation (CE Regulation n° 1907/2006 and subsequent amendments and additions):

Product not included in the list of extremely worrying substances (SVHC) subject to authorisation

Restrictions in terms of the REACH Regulation (CE Regulation n° 1907/2006 and subsequent amendments and additions):

Substance subject to Restrictions in terms of Heading VIII (Appendix XVII, Appendix 2, point 28).

Other EU norms and national implementations:

Seveso Category (Dir 96/82/CE and Dir 105/2003/CE, as well as Legislative Decree 334/99 and subsequent amendments and additions): appendix I, part 1.

Dangerous chemical agent in terms of Heading IX (implementation of Dir 98/24/CE) of Legislative Decree 81/08 and subsequent amendments and additions.



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Carcinogenic agent in terms of Heading IX (implementation of Dir 97/42/CE and 99/38/CE) of Legislative Decree 81/08.
For waste disposal see Legislative Decree 152/06 and subsequent amendments and additions.

15.2 Evaluation of chemical safety

Chemical safety was evaluation.

16. OTHER INFORMATION

List of pertinent phrases:

These phrases are given for information and do not necessarily correspond to the classification of the product.

R phrases

- R11: Highly flammable
- R12: Extremely flammable
- R22: Harmful if swallowed
- R36/38: Irritating to the eyes and skin
- R38: Irritating to skin
- R45: May cause cancer
- R46: May cause hereditary genetic damage
- R48/20: Harmful: danger of serious damage to health by prolonged exposure by inhalation.
- R48/23/24/25: Toxic: danger of serious damage to health by prolonged exposure by inhalation, contact with the skin, and swallowing.
- R62: Possible risk of impaired fertility.
- R63: Possible risk of harm to the unborn child
- R65: May cause lung damage if swallowed
- R67: Inhalation of the vapours may cause drowsiness and dizziness.
- R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

H Hazard indications

- H224: Highly flammable liquid and vapours
- H225: Easily flammable liquid and vapours
- H302: Harmful if swallowed
- H304: Can be lethal in case of ingestion and penetration of the respiratory tracts
- H315: Causes skin irritation
- H319: Causes serious eye irritation
- H336: Can cause drowsiness or dizziness
- H340: Can cause genetic changes
- H361d: Suspected to be harmful to foetuses
- H361f: Suspected to be harmful to fertility
- H372: Causes damage to organs in case of prolonged or repeated exposure
- H373: Can cause damage to organs in case of prolonged or repeated exposure
- H411: Toxic for aquatic organisms with long-term effects

Indications on training:

Adequately train workers that will potentially be exposed to these substances, based on the contents of this safety data sheet.

Principal biological references and data sources:

Registration Dossier

Legend for abbreviations and acronyms:

- ACGIH = American Conference of Governmental Industrial Hygienists
- CSR = Report on Chemical Safety
- DNEL = Derived Non-Effect Level
- DMEL = Derived Minimum Effect Level
- EC50 = Mean effective concentration
- IC50 = Inhibition concentration, 50%
- Klimisch = Evaluation criteria for the reliability of the method used.
- LC50 = Lethal concentration, 50%
- LD50 = Mean lethal dosage



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PNEC	=	Envisaged Non-Effect Concentration
n.a.	=	not applicable
n.d.	=	not available
PBT	=	Persistent, Bioaccumulable, and Toxic Substance
SNC	=	Central Nervous System
STOT	=	Specific Toxicity for Organs Targeted
(STOT) RE	=	Repeated exposure
(STOT) SE	=	Single exposure
Key study	=	Most pertinent study
TLV [®] TWA	=	Threshold Limit Value – mean pondered over time
TLV [®] STEL	=	Threshold Limit Value - limit for short exposure time
UVCB	=	Substances of Unknown or Variable composition
vPvB	=	very Persistent and very Bioaccumulable

note H = The classification and labelling indicated for this substance relates to the dangerous property or properties stated in the danger indication or indications, along with the class or classes of danger and category or categories indicated. The provisions of article 4 on manufacturers, importers, or downstream users of this substance apply to all danger classes and categories. For the danger classes for which the form of exposure or nature of the effects gives rise to differentiation in classification of the danger class, the manufacturer, importer or downstream user are bound to take into account the forms of exposure or nature of effects not yet considered.

note P = Classification as a carcinogen or mutagen is not necessary if it can be shown that the substance contains a percentage of benzene of less than 0,1 % by weight (EINECS n° 200-753-7).
If the substance is not classified as being carcinogenic, at least warning tips (P102) -P260-P262-P301 + P310-P331 (table 3.1) or the S phrase (2-)23-24-62 (table 3.2) must appear.

Date revised 30/11/2010

Reason for the revision: Update in terms of CE Regulation N° 1907/2006(REACH) as amended, Appendix I of EU Regulation 453/2010, and in terms of CE Regulation n° 1272/2008(CLP)



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APPENDIX 1

LIST OF USES IDENTIFIED



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Name of use identified	Sector	Usage sector SU	Process categories PROC	Environmental release categories ERC	Specific environmental release categories ERC
01- Production of the substance	Industrial	3,8, 9	1, 2, 3., 8a, 8b, 15	1,4, 0	ESVOC SpERC 1.1.v1
01b- Use as intermediate	Industrial	3,8, 9	1, 2, 3., 8a, 8b, 15	6a	ESVOC SpERC 6.1a.v1
01a- Distribution of the substance	Industrial	3	1, 2, 3., 8a, 8b, 15	1,2,3,4,5,6a,6b,6c,6d, 7	ESVOC SpERC 1.1b.v1
02- Formulation & (re)packing of substances and mixtures	Industrial	3,10	1, 2, 3., 8a, 8b, 15	2	ESVOC SpERC 2.2.v1