

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND COMPANY/ORGANIZATION

1.1 Product identification

Name of substance/mixture:	GAS OIL (SR MIDDLE)
Synonyms	Distillates (petroleum), full range straight-run middle
CAS number	68814-87-9
EC number	272-341-5
Index number	not available
Registration number	01-2119486887-13-0058
Chemical formula	The substance is an UVCB complex (prC3), and thus it is not possible to provide a molecular formula.
Molecular weight	The substance is an UVCB complex (prC3), and thus it is not possible to provide a molecular formula.

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

Common uses production and use as intermediate under SCC

1.3 Information on the supplier of the safety data sheet:

Company name ALMA PETROLI S.p.A.
Address Via di Roma 67 - Via Baiona 195
City / Country Ravenna, Italy
Phone 0039054434317-00390544696411
E-mail of competent technician info@almapetroli.com

1.4 Emergency telephone number:

Poison centre - Telephone consultation operative (24/7):

Niguarda Hospital Milan Tel: 02 66101029,

Poison centre Pavia: Tel. 0039 0382 24444,

Poison centre Bergamo: Tel: 800 883300,

Poison centre Foggia: Tel 0039-0881-732326,

Poison centre Florence: Tel 0039-055-7947819,

Poison centre Policlinico Umberto I Rome: Tel 0039-06-490663,

Poison centre Policlinico "A.Gemelli": Tel 0039-06-3054343,

Poison centre Cardarelli Naples: Tel: 081-5453333/7472870

Alma Petroli - Sciascia Antonino (Employer) - Mob. 0039-3461305790 (24/7)

Alma Petroli - Fabbri Maurizio (RSPP) - Mob. 0039-3461321422 (24/7)

2. IDENTIFICATION OF THE HAZARDS

Physical-chemical hazards: flammable liquids and vapours

Health hazards: the product is harmful if inhaled. Given its low viscosity, the product can be inhaled into the lungs either following direct swallowing or after spontaneous or induced vomiting; this can give rise to chemical pneumonia. May cause damage to organs through prolonged or repeated exposure

Environmental hazards: the substance is toxic for aquatic organisms with long-term adverse effects in the aquatic environment.

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

2.1 Classification of the substance or mixture

Flamm Liq.3;	H226
Asp. Tox. 1:	H304
Acute Tox 4:	H332
STOT Rep.Exp.2:	H373 (liver, spleen and bone marrow)
Aquatic Chronic 2:	H411

The list of H-phrases is reported in section 16.

Note: the classification was attributed taking into account the following SRGO characteristics (Viscosity $\leq 20.5 \text{ mm}^2/\text{s}$ at 40 °C. Flash point $\geq 23 \text{ °C}$ and $\leq 75 \text{ °C}$)

2.2 Elements in the label



Signal word: **HAZARD**

Hazard statements:

H226:	Flammable liquid and vapours
H304:	May be fatal if swallowed and enters airways
H332:	Harmful if inhaled
H373:	May cause damage to organs through prolonged or repeated exposure
H411:	Toxic to aquatic life with long lasting effects
EUH066:	Exposure may cause skin dryness and cracking

Precautionary statements:

Prevention

P210:	Keep away from sources of heat, hot surfaces, sparks, open flames or other sources of ignition. Do not smoke
P261:	Avoid breathing mist/vapours/spray
P273:	Avoid release to the environment
P280:	Wear protective gloves/protective clothing/eye protection/face protection

Reaction

P301+310:	IF SWALLOWED: immediately call a POISON CENTRE or doctor/physician
P332+313:	If skin irritation occurs: get medical advice/attention
P331:	DO NOT induce vomiting

Disposal

P501:	Dispose of contents/container in compliance with It. Leg. Dec. 152/06
-------	---

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

Additional information: Not available

2.3 Other hazards

When heated the product emits vapours that may form flammable, explosive mixtures with air. The vapours are heavier than air: they can accumulate in confined or low-lying spaces, propagate at ground level and can lead to the risk of fire and explosion, even from a distance. There is the risk of thermal burns if the product comes into direct contact with the skin or eyes since it is handled at high temperatures.

The product does not meet the PBT or vPvB classification criteria as per REACH annex XIII.

3. COMPOSITION / INFORMATION ON THE INGREDIENTS

3.1 Substances

UVCB substance: ("Complex combination of hydrocarbons produced by distillation of crude oil. It is composed of hydrocarbons generally containing between C9 and C25 carbon atoms and having a boiling point in the 150°C - 400°C range (approx.)

Name	EC no.	CAS no.	Index no.	Registration no.
GAS OIL (SR MIDDLE)	272-341-5	68814-87-9	n.d.	01-2119486887-13-0058

3.2 Mixtures

n.a.

4 FIRST AID MEASURES

4.1 Description of first aid measures

Eye contact: Rinse cautiously with water for several minutes (814). Remove contact lenses, if this can be done easily (808). If irritation, blurred vision or swelling occurs and persists, obtain medical advice from a specialist (721).

Skin contact: remove contaminated clothing, contaminated footwear and dispose of safely (811). Wash the affected area with soap and water (849). Seek medical attention if skin irritation, swelling or redness develops and persists (817).

For minor thermal burns, cool the injured area (705). Hold the burned area under cold running water for at least five minutes, or until the pain subsides (709). Body hypothermia must be avoided (659). See sect. 2.3.

When using high-pressure equipment, injection of product can occur (850). If high-pressure injuries occur, immediately seek professional medical attention (718). Do not wait for symptoms to develop (686).

Ingestion/aspiration: Do not induce vomiting as there is high risk of aspiration (680). Do not give anything by mouth to an unconscious person (679).

In the event of spontaneous vomiting, keep the casualty's head down to prevent the risk of breathing vomit into the lungs.

Inhalation: Inhalation of vapours at ambient temperature is unlikely because of the low vapour pressure of the product. Exposure to vapours may however occur when the product is handled at high temperatures with poor ventilation (696). In case of symptoms arising from inhalation of fumes,

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

mists or vapours (744), transfer the casualty to a quiet and well ventilated place if safe to do so (804).

If the casualty is unconscious (716) and not breathing (790), ensure that there is no obstruction to breathing and give artificial respiration by trained personnel (694). If necessary, give external cardiac massage and obtain medical advice (723).

If the casualty is breathing (660), place in the recovery position (724). Administer oxygen if necessary (649).

4.2 Primary symptoms and effects, both acute and delayed

May cause skin irritation (825), slight eye irritation (826), irritation of the respiratory tract due to excess fume, mists or vapour exposure (767). If swallowed: few or no symptoms expected (700). If any, nausea and diarrhoea might occur (711).

4.3 Indication of any immediate medical attention and special treatment needed

In case of ingestion, always assume that aspiration has occurred (740). The casualty should be sent immediately to a hospital (823). Do not wait for symptoms to develop (686).

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Small scale fires: earth or sand (872), carbon dioxide (852), foam (859), dry chemical powder (856).

Large scale fires: foam (859), water fog (887). Note: sprayed water (water fog) can only be used by specially trained personnel. Other inert gases (subject to regulations) (870)

Unsuitable extinguishing media: Do not use direct water jets on the burning product (855), they could cause splattering and spread the fire (881). Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam (873).

5.2 Special hazards arising from the substance or mixture

Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates, gases, including carbon monoxide (867), H₂S (Hydrogen sulphide), SO_x (sulphur oxides) or H₂SO₄ (sulphuric acid) (861) unidentified organic and inorganic compounds (886).

5.3 Recommendations for fire-fighting personnel

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 (864).

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Stop or contain leak at the source, if safe to do so (1006). Avoid direct contact with released material (903). Stay upwind (1003). In case of large spillages, alert occupants in downwind areas (956). Keep non-involved personnel away from the area of spillage. Alert emergency personnel (968). Except in case of small spillages (925), the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency (1007). Eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares) (920).

Small spillages (995): normal antistatic working clothes are usually adequate (983).

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

Large spillages: full body suit of chemically resistant and antistatic material (973). Work gloves providing adequate chemical resistance, specifically to aromatic hydrocarbons (1028). Gloves made of PVA (Polyvinyl alcohol) are not water-resistant and are not suitable for emergency use (933). Work helmet (1030). Antistatic non-skid safety shoes or boots (899). Chemically resistant. Goggles or face shield, if splashes or contact with eyes is possible or anticipated (934). Respiratory protection: a half or full-face respirator with filter(s) for organic vapours (and when applicable for H₂S) (892) or a Self-Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure (895). If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used (951).

6.2 Environmental precautions

Prevent product from entering sewers, rivers or other bodies of water (985).

6.3 Methods and materials for containment and cleaning

Spillages onto land: If necessary dike the product with dry earth, sand or similar non-combustible materials (940). Large spillages may be cautiously covered with foam, if available, to limit fire risk (970). Do not use direct jets (918). When inside buildings or confined spaces, ensure adequate ventilation (1022). Absorb spilled product with suitable non-combustible materials (896). If it is necessary to store any contaminated materials for subsequent safe disposal, only suitable containers (airtight, sealed, waterproof, and earthed) should be used (939). In case of soil contamination, remove contaminated soil and treat in accordance with local regulations (959).

Spillage in water: In case of small spillages in closed waters (e.g.: in ports) (957), contain product with floating barriers or other equipment (958). Collect spilled product by absorbing with specific floating absorbents (910). Large spillages (972): if possible, large spillages in open waters should be contained with floating barriers or other mechanical means (948). The use of dispersants should be advised by an expert, and, if required, approved by local authorities (1012). If possible, collect the product and contaminated materials with mechanical means, and store/dispose of according to relevant regulations (945).

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 (990). For this reason, local experts should be consulted when necessary (930).

6.4 Reference to other sections

For more information regarding personal protective equipment see section "Exposure control/personal protection" (1086).

6.5 Additional information

No additional information available

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Protective measures

Ensure that all relevant regulations regarding handling and storage facilities of flammable products are followed (1080).

Take precautionary measures against static electricity (1140). Ground/bond containers, tanks and transfer/receiving equipment (1087). The vapour is heavier than air (1137). Beware of accumulation in pits and confined spaces (1051). Keep away from heat/sparks/open flames/hot surfaces (1097). Do not smoke. Avoid contact with skin and eyes (1041). Do not swallow (1072). Do not breathe vapours (1070).

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

Use and store only outdoors or in a well-ventilated area (1148). Avoid contact with the product (1045). Use adequate personal protective equipment as needed (1146). Do not use compressed air for filling, discharging or handling operations (1073). Prevent the risk of slipping (??). Avoid release to the environment.

7.1.2 Indications regarding hygiene in the workplace

Ensure that proper housekeeping measures are in place (1081). Contaminated material should not be allowed to accumulate in the workplaces and should never be kept inside the pockets (1061). Keep away from food and beverages (1096). Avoid contact with skin (1042). Do not eat, drink or smoke when using this product (1041). Wash the hands thoroughly after handling (1156). Do not reuse contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Storage area layout, tank design, equipment and operating procedures must comply with the relevant European, national or local legislation (1127). Storage installations should be designed with adequate bunds so as to prevent ground and water pollution in case of leaks or spills (1129). Cleaning, inspection and maintenance of internal structure of storage tanks must be performed only by properly equipped and qualified personnel as defined by national, local or company regulations (1054), after having cleaned out the tank. Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content and flammability (1050). Store separately from oxidising agents (1153). Store in a well-ventilated place (1131).

Recommended materials (1117): use mild steel, stainless steel for containers, or container linings (1116). Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use (1125). Compatibility should be checked with the manufacturer (1055).

If the product is supplied in containers (1094) keep only in the original container or in a suitable container for this kind of product (1099).

Keep containers tightly closed and properly labelled (1098). Protect from the sunlight (1114).

Light hydrocarbon vapours can build up in the headspace of containers (1100). These can cause flammability / explosion hazards (1138). Empty containers may contain combustible product residues (1077). Do not weld, solder, drill, cut or incinerate empty containers, unless they have been properly cleaned (1075).

7.3 Specific final uses

“the substance/product has been registered with strictly controlled conditions, as per articles 17(3) and 18(4) of EC Regulation no. 1907/2006 and must be handled as such”.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 Control parameters

Gas oil (Diesel fuel)

ACGIH 2016:

TLV®-TWA: 100 mg/m³

Mineral oil:

ACGIH 2016:

TLV®-TWA: Exposure must be kept to the barest minimum (slightly or mediumly refined mineral oil):

TLV®-TWA: 5 mg/m³ (pure, highly or differently refined mineral oil)

Monitoring procedure: see It. Leg. Dec. 81/2008 and subsequent amendments and integrations or good industrial hygiene practices.

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

8.2 Exposure control

The intermediate substance must be manufactured and used under strictly controlled conditions throughout its entire life cycle, as reported in art.17 and/or art.18 of Reg. 1907/2006 (REACH):

- a) the substance must be strictly confined with technical devices throughout its entire life cycle, including during manufacture, purification, cleaning and maintenance of the equipment, sampling, analysis, loading and unloading of the equipment or containers, waste disposal or cleaning and storage;
- b) technical procedures and controls that can keep emissions and resulting exposure to the barest minimum must be applied;
- c) the substance must be handled only by specially trained, duly authorized personnel;
- d) in the case of cleaning and maintenance, special procedures, e.g. purging and washing, must be applied before opening and entering the plant;
- e) in the event of accident and where wastes are produced, technical procedures and/or controls must be applied to keep emissions and exposure during the clean-up procedures or during cleaning and maintenance to the barest minimum;
- f) the procedures for handling of substances must be clearly documented and strictly controlled by the site management.

8.2.1 Suitable technical checks

Minimise exposure to mist/ vapours/sprays. Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content.

8.2.2 Personal protection measures

(a) Eye/face protection:

In the absence of systems for containment, and if contact with the eyes/face is possible, head and facial protection (protective shield and/or safety goggles) should be used (EN 166).

(b) Skin protection:

i) Hand protection

In the absence of containment systems, and if contact with the skin is possible, use hydrocarbon-resistant gloves with long cuffs that are plush lined and, if necessary, thermally insulated. Materials assumed to be adequate: nitril, PVC or PVA (polyvinyl alcohol) with index of protection against chemical agents of at least 5 (permeation time > 240 minutes). Use gloves under the conditions and respecting the limits set by the manufacturer. If necessary, see UNI EN 374. Gloves must be periodically inspected and changed in case of wear, perforations or contaminations.

ii) Other

Replace and clean clothing immediately in case of contamination.

(c) Respiratory protection:

In confined spaces:

Use approved respiratory protection equipment: full face mask with cartridge/filter type AX (brown for organic vapours with 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 the absence of systems for containment:

Use approved respiratory protection equipment: full face mask with cartridge/filter type AX (brown for organic vapours with low boiling point).

(d) Thermal hazards: see previous letter b)

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

**8.2.3 Environmental exposure control**

Avoid release to the environment (1046). Storage installations should be designed with adequate bunds so as to prevent ground and water pollution in case of leaks or spills (1129).

Prevent discharge of undissolved substance to or recover from onsite wastewater. (TRC14)

8.3 Other

No additional information available.

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on essential physical and chemical properties

a) Appearance	liquid
b) Odour	of petroleum
c) Olfactory threshold	n.d.
d) pH	n.a.
e) Melting/freezing point	From - 21 to +6°C ASTM 1999 CONCAWE 2010a
f) Initial boiling point and boiling range	172°C 172 - >370°C (ISO 3405) (Test report 10CM00357)
g) Flash point	73°C Pensky Martens (ISO 2719) (Test report 10CM00357)
h) Evaporation rate	n.a.
i) Flammability (solids, gases)	n.a.
j) Upper/lower flammability or explosive limits	n.d.
k) Vapour pressure	0,4 kPa at 40°C (ASTM1991)
l) Vapour density	n.a.
m) Density	0.8825 kg/l at 15°C (ISO 3675) (Test report 10CM00357)
n) Solubility	solubility in water not applicable since it is an UVCB substance
o) Partition coefficient (n-octanol/water)	not applicable since it is an UVCB substance
p) Auto-ignition temperature	>240 °C CONCAWE 2010a
q) Decomposition temperature	n.a.
r) Viscosity	3.1 mm ² /s at 40°C ISO 3104 (Test report 10CM00357)
s) Explosive properties	none of the chemical groups associated with the molecule have explosive properties (Ref. column 2 of the REACH in annex VII)
t) Oxidising properties	non oxidizing (on the basis of the chemical structure, the substance does not react exothermally with combustible materials. Ref. column 2 of the REACH in annex VII)

9.2 Additional information

The characteristic analysis methods are the nationally and internationally recognized methods reported, for the most part, in the product commercial specifications.

10. STABILITY AND REACTIVITY

10.1 Reactivity

The substance does not present any further hazard related to reactivity, above and beyond those reported in the following subsections

10.2 Chemical stability

This substance is stable as regards its inherent properties.

10.3 Possibility of dangerous reactions

Contact with strong oxidizers (peroxides, chromates, etc.) may cause a fire hazard. A mixture with nitrates or other strong oxidisers (e.g. chlorates, perchlorates, liquid oxygen) may create an explosive mass (611). Sensitivity to heat, friction or shock cannot be assessed in advance (618).

10.4 Conditions to be avoided

Store separately from oxidising agents (1133).

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

Keep away from heat/sparks/open flames/hot surfaces (1907). Do not smoke

Prevent the formation of electrostatic charges.

10.5 Non-compatible materials

Strong oxidizers

10.6 Hazardous decomposition products

The product does not decompose when used for the envisaged purposes

11. TOXICOLOGICAL INFORMATION

11.1 Toxicokinetics, metabolism, and distribution

No in vivo data are available on the toxicokinetics of gas oil.

Experimental studies, performed in animals, have shown absorption through the lungs. Considerations on the chemical-physical properties suggest that the highly breathable aerosols of poorly water soluble substances having log Pow values higher than zero are absorbed to a certain extent by the airways. In the absence of further information, it is assumed that 50% of the dose of gas oil aerosol inhaled is absorbed by the lungs in both animals and man.

No data are available on absorption of gas oil through the skin; however repeated toxicity studies indicate that a certain degree of absorption through the skin is possible. Application of the SPINKERM model indicates that absorption of gas oil through the skin is most likely low (estimated skin flow: 0.0001058 mg cm⁻²/hour for human skin). Nevertheless, since the reliability of this value is not known, to be on the safe side, complete absorption of gas oil through the skin is assumed.

11.2 Toxicological information

a) Acute toxicity:

Oral route

Acute oral toxicity of samples belonging to the category of straight run middle gas oils has been assessed in a series of studies. All studies have shown an oral LD50 > 2000 mg/kg. Therefore, given these results, no classification under the standards for hazardous substances is possible.

Below is a summary of the most representative studies found in the registration file.

Method	Result	Comments	Source
Oral Route			
RAT (F/M) ORAL (forced feeding) OECD Guideline 401	LD50: > 5000 mg/kg (M/F)	Key study reliable without restrictions CAS 64741-44-2	API (1985a)

Inhalation route

Some studies have been performed in the rat to evaluate acute toxicity by inhalation of straight run middle gas oils category products. Given these results, the substance requires a classification of Acute Tox. 4 H332: (Harmful if inhaled).

Below is a summary of the most representative studies found in the registration file.

Method	Result	Comments	Source
Inhalation route			
RAT (M/F) Aerosol mixture OECD Guideline 403	LC50 mg/l/4 hours: 1.78 (F) LC50 mg/l/4 hours: 1.72 (M) LC50 mg/l/4 hours: 1.82 (M/F)	Key study CAS 64741-44-2 Reliable without restrictions	API (1987)

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

Cutaneous route

Acute oral toxicity of samples belonging to the category of straight run middle gas oils has been assessed in a series of studies. All studies have shown a cutaneous LD50 > 2000 mg/kg. Therefore, given these results, no classification under the standards for hazardous substances is possible.

Below is a summary of the most representative studies found in the registration file.

Method	Result	Comments	Source
Cutaneous route			
RABBIT OECD Guideline 402	LD50 >2000 mg/kg (M/F)	Key study CAS 64741-44-2 Reliable without restrictions	API (1985a)

b) Skin corrosion/irritation

No specific studies are available on the corrosiveness of said substance. Considering the information derived from studies performed in animals and the nature of the substance, no corrosive action is expected.

The skin irritation potential of samples belonging to the category of this product was tested in a large number of studies, generally performed in rabbits. Only some studies show minor skin irritation. Given these results, no classification is possible. Below is a summary of the most representative studies found in the registration file.

Method	Result	Comments	Source
RABBIT Patch test (on each animal, two sites with intact skin and 2 sites with abraded skin) Observation at 24/72 hours OECD Guideline 404	Non irritant Average erythema score: 1.8 of max. 4 (intact skin) Average edema score: 1.58 of max. 4 (intact skin)	Key study Reliable with restrictions CAS 64741-44-2	API (1985a)

c) Severe eye lesions/severe eye irritation

The eye irritation potential of samples belonging to this product category was tested in a large number of studies, generally performed in rabbits. The conclusions of these studies indicate that there is no significant irritation to the eyes and thus the substance is not classified as eye irritant under the standards on hazardous substances.

Below is a summary of the most representative studies found in the registration file.

Method	Result	Comments	Source
RABBIT Observation at 24/48/72 hours OECD Guideline 405	Non irritant Average cornea score: 0 of max 80 (average) Average iris score: 0 of max 10 (average) Average conjunctiva score: 0 of max 20 (average)	Key study Reliable without restrictions CAS 64741-44-2	API (1985a)

d) Sensitization of respiratory tract and skin

Sensitization of respiratory tract

Information not available. This endpoint is not required by REACH.

Sensitization of skin

A skin sensitization study was performed for the category of straight run middle gas oils. The results obtained from this study indicate that there is no potential for skin sensitization and thus no substance classification is required under the standards on hazardous substances.

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

Below is a summary of the most representative studies found in the registration file.

Method	Result	Comments	Source
GUINEA PIG Buehler test Guideline 406	Non sensitising	Support study Reliable without restrictions CAS 64741-44-2	API (1985a)

e) Germ cell mutagenicity

The mutagenic potential of samples belonging to the category of straight run middle gas oils has been studied in a series of in vivo and in vitro tests and through read-across with the category "Other Gas Oils". These studies have shown a very "borderline" genotoxic potential; therefore, no classification under the standards for hazardous substances is assigned.

Below is a summary of the most representative studies found in the registration file.

Method	Result	Comments	Source
In vitro gene mutation (Ames Test) in Salmonella thyphimurium TA 98 Doses: 5, 10, 15, 20, 30, 40, 50, 60 µl/plate OECD Guideline 471	Positive with metabolic activation (marginally mutagenic)	Key study Reliable with restrictions CAS:64741-44-2 and CAS 68814-87-9	Deiningner, G., Jungen, H., Wenzel-Hartung, R. (1991)
In vivo chromosomal aberration test RAT (M/ F) Administration: Intraperitoneal Doses: 300, 1000, 3000 mg/kg OECD Guideline 475	Genotoxicity: Negative	Key study Reliable without restrictions CAS 64741-44-2	American Petroleum Institute (API) 1985c

f) Carcinogenicity

Prolonged exposure to straight run gas oils may cause severe skin irritation that can evolve into skin tumours (see study reported below). In the absence of irritation, onset of tumours has NOT been found. Therefore, for straight run gas oils, the standards on hazardous substances do not require any classification.

Method	Result	Comments	Source
MOUSE (male) exposure: 24 months Doses: 50 µl Exposure for half a lifetime (3 times a week) OECD 453	Result: a 22% incidence of neoplasia was found in the animals treated	Key study Reliable with restrictions CAS: 64741-44-2	API (1989)

g) Reproductive Toxicity

Toxicity for reproduction:

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

To date, the number of studies is inadequate to determine the impact of straight run middle gas oils on human fertility. Therefore, it is not possible to assign a classification under the standards on substances. Nevertheless, regarding registration as per REACH regulations, a test has been proposed to study fertilization over two generations.

Toxicity for development/teratogenesis:

The studies on development have proved positive only at doses that also caused toxicity in the mother. Therefore no classification of the substance is required under the standards for hazardous substances.

Below is a summary of the most representative studies found in the registration file.

Method	Result	Comments	Source
RAT Means of exposure: skin Doses: 0, 8, 30, 125, 500 mg/kg/day Exposure: Pre- and post-natal OECD 414	NOAEL (maternal toxicity): 30 mg/kg/day reduced food intake, increased liver weight and variations in blood parameters. NOAEL (toxicity for development): 30 mg/kg/day, miscarriage, decrease foetal weight, skeletal anomalies.	Key study Reliable without restrictions (CAS 68915-97-9)	Mobil (1995)

h) Specific target organ toxicity (STOT) - single exposure:

No specific target organ toxicity following single exposure

i) Specific target organ toxicity (STOT) - repeated exposure:

A NOAEL of 30 mg/kg/day for skin exposure and a NOAEC of 1.75 mg/l for read-across were found.

On the basis of the results obtained, the substance is classified STOT Rep.Exp.2 H373 as per CLP Regulation.

Target organs, liver, spleen and bone marrow.

Below is a summary of the most representative studies found in the registration file.

It must be pointed out that the registration file does not contain any information regarding oral exposure (tests for repeated oral toxicity are not required because the main exposure routes in humans are skin and inhalation - ref. column 2, Annex IX of the Reach regulation)

Method	Result	Comments	Source
Inhalation			
RAT (M/F) Inhalation (aerosol) Exposure: 13 weeks (subchronic) OECD Guideline 413	NOAEC: >1.71 mg/l systemic effects (male/female) NOAEC: 0.88 mg/l local effects (lung weight) (male/female)	Key study Read-across Reliable with restrictions Diesel fuel	Lock, S., Dalbey, W. Schmoyer, R., Griesemer, K. (1984)
Skin			
RAT (M/F) Exposure: 13 weeks OECD Guideline 411	NOAEL (systemic effects): 30 ml/kg/day (M/ F) NOEL (local effects: skin irritation): 500 ml/kg/day (M/ F) LOAEL (systemic effects): 125 ml/kg/day (M/ F)	Key study Reliable with restrictions CAS 68334-30-5	Mobil (1992) Feuston, M.H., Low, L.K., Hamilton, C.E., Mackerer, C.R. (1994)

j) Aspiration hazard:

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

Since gas oils have a viscosity of $< 20.5 \text{ mm}^2/\text{s}$ at 40°C the product might be breathed into the lungs according to the criteria in annex I, part 3 of Regulation 1272/2008.

Therefore, it is classified as Asp. Tox. 1 H304 (May be fatal if swallowed and enters airways).

Additional information

No additional information available

12. ECOLOGICAL INFORMATION

On the basis of the ecological information reported below, the toxicity in fish, invertebrates and algae, and on the basis of the criteria indicated in the standards on hazardous substances, gas oil is classified as hazardous for the environment H411, toxic to aquatic organisms, may cause long-term adverse effects.

12.1 Toxicity

Below is a summary of the most representative studies found in the registration file.

Endpoint	Result	Comments
Aquatic toxicity		
Invertebrates Daphnia magna Short term OECD 202 (Immobilization tests for Daphnia sp) Method EU C.2 (Acute toxicity for Daphnia)	EL50 (24 h): > 1000 EL50 (48 h): 210 mg/l NOEL (48 h): 46 mg/l	Key study Reliable without restrictions CAS 68334-30-5 Read-Across Girling A and Cann, B (1996b)
Invertebrates Daphnia magna Long term QSAR modelled data	NOEL 21/days: 0.167 mg/l	Key study Reliable with restrictions QSAR Redman, et al.(2010b)
Algae Raphidocelis subcapitata Short term OECD 201 (Algal growth inhibition test) Method EU C.3. (Algal inhibition test)	EbL50 (72 h): 25 mg/l ErL50 (72 h): 78 mg/l NOEL (72 h): 3 mg/l	Key study Girling, A and Cann, B (1996a) Reliable with restrictions Read-across CAS 68334-30-5
Fish Oncorhynchus mykiss Short term	LL50 96/hours: 1.301 mg/l	Key study Reliable with restrictions QSAR Redman, et al.(2010b)
Fish Oncorhynchus mykiss Long term	NOEL 14 days: 0.068 mg/l	Key study Reliable with restrictions QSAR Redman, et al.(2010b)

12.2 Persistence and degradability

Abiotic degradability

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

Hydrolysis: gas oils are resistant to hydrolysis because they lack a hydrolytically reactive functional group. Therefore, this process does not lead to any measurable loss of substance degradation in the environment.

Photolysis in air: endpoint not required by REACH

Photolysis in water and soil: endpoint not required by REACH

Biotic degradability in water/sediments/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 soil

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 established in annex XIII of REACH regulation

For this UVCB substance, since it is an intermediate, a chemical safety report is not required and thus results of PBT and vPvB assessments are not available.

12.6 Other adverse effects

None.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Do not discharge on the ground or in sewers, tunnels or waterways.

To dispose of waste derived from this product, including empty uncleaned containers, comply with It. Leg. Dec. 152/06 and subsequent amendments and integrations

European Waste Catalogue Code: 13 07 03 * (It. Leg. Decree no. 152/06 and subsequent amendments and integrations), the code indicated provides only general indication, based on the original composition of the product and the envisaged uses thereof.

The user (producer of the wastes) is responsible for choosing the most appropriate code to apply according to the real use of the product, any alterations and contaminations. The product 'as is' does not contain halogenated compounds.

Disposal of containers: Do not dispose of the containers in the environment. Dispose of them in compliance with current local standards.

Do not drill, cut, grind, weld, solder, burn or incinerate empty containers or drums, unless they have been drained and cleaned.

14. TRANSPORT INFORMATION

14.1 UN number:

1202

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

14.2 UN shipping name:

GAS OIL

14.3 Hazard classes related to transport

Land/rail transport (ADR/RID)	Class 3 Classification code: F1 Hazard ID number: 30
Maritime transport (IMDG)	Class 3
Air transport (IATA):	Class 3, Flamm liquid

14.4 Packaging groups:

III, Label 3 + Environmental Hazard mark

14.5 Environmental hazard

Substance dangerous for the environment as per ADR, RID, ADN and IMDG regulations

14.6 Special precautions for users (transport operations):

Wear chemically resistant gloves (tested to EN374) (PPE15).

14.7 Bulk transport as per annex II of the MARPOL Convention 73/78 and IBC code

Not applicable

14.8 Other

Tunnel restriction code (ADR): D/E

15. REGULATORY INFORMATION

15.1 Specific health, safety and environment standards and legislation for the substance or mixture

- Title VII Authorization as per REACH (Reg. EC no. 1907/2006 and subsequent amendments and integrations: not subject to authorization.
- Title VIII Restrictions as per REACH (Reg. EC n. 1907/2006 and subsequent amendments and integrations: item 3, annex XVII: hazardous substances/liquid mixtures;

Other EU regulations and national transpositions:

- Seveso category (Dir. 2012/18/EU) It. legislative decree no. 105/2015):
Annex I part 1:
category P5c - Flammable liquids -,
Category E2- Hazardous for the aquatic environment, chronic toxicity category 2-
Annex I part 2: category 34-Petroleum products and alternative fuels,
- Title IX section I (transposition of Dir. 98/24/EC) of It. Leg. Decree 81/08 and subsequent amendments and integrations: dangerous chemical agent
- Title IX section II (transposition of Dir. 2004/37/EC) and Italian Legislative Decree no. 81/08: not applicable because not carcinogenic

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

For waste disposal, see It. leg. Dec. 152/06 and subsequent amendments and integrations

15.2 Chemical safety assessment

A chemical safety assessment has not been performed

16. OTHER INFORMATION

List of pertinent hazard statements:

These phrases are presented as a source of information and do not necessarily correspond to the product classification

H Hazard indications

- H226: Flammable liquid and vapours
- H304: May be fatal if swallowed and enters airways
- H332: Harmful if inhaled
- H373: May cause damage to organs through prolonged or repeated exposure.
- H411: Toxic to aquatic life with long lasting effects
- EUH066: Exposure may cause skin dryness and cracking

Indications for training:

Provide workers who may be exposed to the substance with adequate training as outlined in this safety data sheet

Main bibliography and sources of data:

Registration file

Key to abbreviations and acronyms:

- ACGIH = American Conference of Governmental Industrial Hygienists
- CSR = Chemical Safety Report
- EC50 = Effective concentration, 50%
- IC50 = Inhibitory concentration, 50%
- Klimisch = Criterion for assessing reliability of method used.
- LC50 = Lethal Concentration, 50%
- LD50 = Lethal Dose, 50%
- n.a. = Not applicable
- n.d. = Not available
- PBT = Persistent, bioaccumulative, toxic substance
- s.m.i. = Subsequent amendments and integrations
- CNS = Central nervous system
- STOT = Specific target organ toxicity
- (STOT) RE = Repeated exposure
- (STOT) SE = Single exposure
- Key Study = Most pertinent study
- TLV®TWA = Threshold Limit Value – Time Weighted Average

GAS OIL (SR MIDDLE)

REV.: E

DATE: 02/11/2020

PREPARED BY: ICARO S.r.l

FOR: ALMA PETROLI S.p.A.

TLV®STEL = Threshold Limit Value – Short Term Exposure Limit

UVCB = substances of Unknown or Variable Composition

vPvB = Very Persistent and Very Bioaccumulative

Drafted on 29/11/2010

Revision date 01/10/2014

Reason for Rev00 of 01/10/2014: Update to comply with Annex I of EU Regulation 453/2010, of EC CLP Regulation 1272/2008 including the 4th ATP (Adaptations to Technical Progress) envisaged for substances since 1.12.14, of DSD Regulation (67/548/EEC) including the 31th ATP.

Revision date 04/05/2015

Reason for Rev. A of 04/05/2015: Update emergency telephone numbers. Update to 5th ATP

Revision date 21/12/2015

Reason for Rev.B of 21/12/2015: Update the following sections: 2, 8, 11, 14, 15, 16 and exposure scenarios

Revision date 14/07/2016

Reason for Rev. C of 14/07/2016: Update the following sections: 2, 7, 8, 16, exposure scenarios eliminated as the substance was registered as an intermediate under SCC.