



SAFETY DATA SHEET

CleanAirBlue® AdBlue®

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	CleanAirBlue® AdBlue®
Product number	4303
Synonyms; trade names	AdBlue®/ Urea Solution/DEF/ARLA 32
CAS number	57-13-6
EC number	200-315-5

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

Identified uses	Fuel additive.
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1.3. Details of the supplier of the safety data sheet

Supplier	Samuel Banner & Co Ltd Hampton Court Manor Park Runcorn Cheshire WA7 1TU, UK +44 (0)1928 597 000 (General Enquiries) +44 (0)1928 597 001 (Fax) sdsadmin@bannerchemicals.com
Contact person	sdsorder@bannerchemicals.com

1.4. Emergency telephone number

Emergency telephone	0207 405 5375 (National Chemical Emergency Centre) 0870 190 6777 (National Chemical Emergency Centre) +44 (0)1270 502891
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Not Classified
Health hazards	Not Classified
Environmental hazards	Not Classified

2.2. Label elements

EC number	200-315-5
Hazard statements	NC Not Classified
Precautionary statements	P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3. Other hazards

CleanAirBlue® AdBlue®

SECTION 3: Composition/information on ingredients

3.2. Mixtures

urea	30-60%
CAS number: 57-13-6	EC number: 200-315-5
Classification	Classification (67/548/EEC or 1999/45/EC)
Not Classified	-

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition comments Contains water and preservative

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Remove affected person from source of contamination. Get medical attention if any discomfort continues.
Ingestion	Do not induce vomiting. Get medical attention if any discomfort continues.
Skin contact	Wash skin thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation persists after washing.
Eye contact	Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General information No additional symptoms or effects are anticipated.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Use foam, carbon dioxide, dry powder or water fog to extinguish.

5.2. Special hazards arising from the substance or mixture

Specific hazards	In case of fire, toxic gases may be formed.
Hazardous combustion products	Does not decompose when used and stored as recommended.

5.3. Advice for firefighters

Protective actions during firefighting	Use water spray to reduce vapours.
Special protective equipment for firefighters	Use air-supplied respirator, gloves and protective goggles.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Provide adequate ventilation.

6.2. Environmental precautions

CleanAirBlue® AdBlue®

Environmental precautions Contain spillage with sand, earth or other suitable non-combustible material. Avoid discharge into drains or watercourses or onto the ground.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with non-combustible, absorbent material. Collect and place in suitable waste disposal containers and seal securely. Flush contaminated area with plenty of water.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid contact with skin and eyes. Provide adequate ventilation.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store at moderate temperatures in dry, well ventilated area. Store in closed original container at temperatures between 0°C and 30°C. Do not use containers made of the following materials: Copper and its alloys. Galvanised containers.

7.3. Specific end use(s)

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

urea

Long-term exposure limit (8-hour TWA): WEL No std.

Short-term exposure limit (15-minute): WEL No std.

WEL = Workplace Exposure Limit

Ingredient comments No exposure limits known for ingredient(s).

DNEL No DNEL information available.

PNEC No PNEC information available.

8.2. Exposure controls

Protective equipment



Appropriate engineering controls Provide adequate ventilation.

Eye/face protection Wear tight-fitting, chemical splash goggles or face shield. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection Wear protective gloves. Wear protective gloves made of the following material: Polyvinyl chloride (PVC). To protect hands from chemicals, gloves should comply with European Standard EN374.

Other skin and body protection Wear suitable protective clothing as protection against splashing or contamination.

Hygiene measures Provide eyewash station. Wash hands at the end of each work shift and before eating, smoking and using the toilet.

CleanAirBlue® AdBlue®

Respiratory protection If ventilation is inadequate, suitable respiratory protection must be worn.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Clear liquid.
Colour	Colourless.
Odour	Slight.
pH	pH (concentrated solution): 10
Initial boiling point and range	103°C @
Relative density	1.09 @ 20°C
Solubility(ies)	Miscible with water.
Viscosity	1.4 mPa s @ 25°C

9.2. Other information

Refractive index	1.3814 - 1.3843
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended. Product freezes at -11°C. Product starts to hydrolyse at 30°C.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Not known.

10.5. Incompatible materials

Materials to avoid Strong oxidising agents. Nitrites

10.6. Hazardous decomposition products

Hazardous decomposition products Ammonia

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Inhalation Remove from contaminated area. Lay patient down. Keep warm and rested.

Ingestion Although ingestion is not thought to be harmful, the material may lead to discomforting effects by inducing gastrointestinal tract pain leading to nausea and vomiting. In an occupational setting, ingestion of insignificant quantities should not be a cause for concern.

CleanAirBlue® AdBlue®

Skin contact Product can produce inflammation of the skin following prolonged contact or immersion. Skin contact is not thought to have harmful health effects, the material may still produce adverse effects following entry through wounds, lesions or abrasions, where a stinging sensation will be felt.

Eye contact Although the material is not classed as an irritant, direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness.

SECTION 12: Ecological Information

12.1. Toxicity

Acute toxicity - fish LC₅₀, 96 hours: >6810 mg/l, Fish

12.2. Persistence and degradability

Persistence and degradability The product is biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

12.4. Mobility in soil

Mobility No information available.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment No information available

12.6. Other adverse effects

Other adverse effects None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste should be treated as controlled waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Disposal methods Recycle containers wherever possible. This product is not classified as hazardous waste.

SECTION 14: Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

CleanAirBlue® AdBlue®

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78
and the IBC Code

SECTION 15: Regulatory information

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

National regulations	The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716).
EU legislation	Regulation (EC) No 1272/2008 CLP. Regulation (EC) No 1907/2006 REACH.
Guidance	Workplace Exposure Limits EH40.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

General information	Only trained personnel should use this material.
Revision comments	MSDS re-formatted on new software. No classification changes made, however please review all sections to ensure familiarisation with contents.
Issued by	Compliance Department
Revision date	26/05/2016
Revision	7
Supersedes date	27/11/2015
SDS status	Approved.
Risk phrases in full	Not classified.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy themselves as to the suitability of such information for his own particular use.

AdBlue® is a registered trademark of the Verband der Automobilindustrie e.V. (VDA)



SAFETY DATA SHEET

IDENDEN DAMPSTRIP ASBESTOS PENETRANT 30-330

According to Regulation (EC) No 1907/2006

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

1.1. Product identifier

Product name IDENDEN DAMPSTRIP ASBESTOS PENETRANT 30-330
Product No. 996908, 996939

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

1.3. Details of the supplier of the safety data sheet

Supplier BOSTIK LIMITED
 COMMON ROAD
 STAFFORD
 STAFFORDSHIRE
 ST16 3EH
 +44 1785 272625
 sds.uk@bostik.com

1.4. Emergency telephone number

+44 1785 272650 (24 Hours)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (1999/45/EEC) Not classified.

2.2. Label elements

Risk Phrases	NC	Not classified.
Safety Phrases	S2 S36/37/39	Keep out of the reach of children. Wear suitable protective clothing, gloves and eye/face protection.

2.3. Other hazards

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

ETHANOL	< 1%
CAS-No.: 64-17-5	EC No.: 200-578-6
Classification (EC 1272/2008) Flam. Liq. 2 - H225	Classification (67/548/EEC) F;R11

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

IDENTEN DAMPSTRIP ASBESTOS PENETRANT 30-330

General information

General first aid, rest, warmth and fresh air.

Inhalation

Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

Ingestion

DO NOT induce vomiting. Get medical attention immediately.

Skin contact

Remove affected person from source of contamination. Rinse the skin immediately with lots of water. Get medical attention if irritation persists after washing.

Eye contact

Rinse the eye with water immediately. Continue to rinse for at least 15 minutes and get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation

No specific symptoms noted.

Ingestion

No specific symptoms noted.

Skin contact

No specific symptoms noted.

Eye contact

No specific symptoms noted.

4.3. Indication of any immediate medical attention and special treatment needed

No specific first aid measures noted.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media

This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

5.2. Special hazards arising from the substance or mixture

Specific hazards

Fire or high temperatures create: Toxic gases/vapours/fumes of: Carbon dioxide (CO₂). Carbon monoxide (CO).

5.3. Advice for firefighters

Protective equipment for fire-fighters

Use protective equipment appropriate for surrounding materials.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Avoid skin and eye contact. Wear personal protective equipment. Avoid breathing vapour

6.2. Environmental precautions

Prevent entry into drains and water courses.

6.3. Methods and material for containment and cleaning up

Stop leak if possible without risk. Do not contaminate water sources or sewer. Pick up with vacuum or absorbent solid, store in closed container for disposal. Avoid generation and spreading of dust. Avoid contact with skin or inhalation of spillage, dust or vapour. Wear necessary protective equipment. Containers with collected spillage must be properly labelled with correct contents and hazard symbol.

6.4. Reference to other sections

Wear protective clothing as described in Section 8 of this safety data sheet.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid spilling, skin and eye contact. Do not handle broken packages without protective equipment.

IDENDEN DAMPSTRIP ASBESTOS PENETRANT 30-330

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well-ventilated place. Keep in original container.

7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
ETHANOL	WEL	1000 ppm	1920 mg/m3			

WEL = Workplace Exposure Limit.

8.2. Exposure controls

Protective equipment



Engineering measures

All handling to take place in well-ventilated area.

Hand protection

Use suitable protective gloves if risk of skin contact. Use thin cotton gloves inside the rubber gloves if allergy risk.

Eye protection

If risk of splashing, wear safety goggles or face shield.

Other Protection

Wear suitable protective clothing as protection against splashing or contamination.

Hygiene measures

Wash promptly if skin becomes wet or contaminated. Promptly remove any clothing that becomes contaminated. When using do not eat, drink or smoke. Wash hands at the end of each work shift and before eating, smoking and using the toilet. Use appropriate skin cream to prevent drying of skin. **DO NOT SMOKE IN WORK AREA!**

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Emulsion.
Colour	Red.
Relative density	1.0 @ 25 °c

9.2. Other information

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

No specific reactivity hazards associated with this product.

10.2. Chemical stability

Stable under normal temperature conditions.

10.3. Possibility of hazardous reactions

Not available.

Hazardous Polymerisation

Unknown.

IDENTEN DAMPSTRIP ASBESTOS PENETRANT 30-330

10.4. Conditions to avoid

Avoid excessive heat for prolonged periods of time. Avoid freezing conditions.

10.5. Incompatible materials

Materials To Avoid

No incompatible groups noted.

10.6. Hazardous decomposition products

Fire creates: Carbon monoxide (CO). Carbon dioxide (CO₂).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Health Warnings

Serious long-term effects are not known to be related to this type of product. Particles in the eyes may cause irritation and smarting. May cause discomfort if swallowed.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Not regarded as dangerous for the environment. However, contamination of the aquatic or terrestrial environments should be avoided

12.1. Toxicity

No data available

12.2. Persistence and degradability

Degradability

There are no data on the degradability of this product.

12.3. Bioaccumulative potential

Bioaccumulative potential

No data available on bioaccumulation.

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

No data available

12.6. Other adverse effects

Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

General information

When handling waste, consideration should be made to the safety precautions applying to handling of the product.

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements. Recover and reclaim or recycle, if practical.

SECTION 14: TRANSPORT INFORMATION

General

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

IDENTEN DAMPSTRIP ASBESTOS PENETRANT 30-330

14.3. Transport hazard class(es)

Transport Labels

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

SECTION 15: REGULATORY INFORMATION

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

Statutory Instruments

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (S.I 2009 No. 716).

Approved Code Of Practice

Classification and Labelling of Substances and Preparations Dangerous for Supply.

Guidance Notes

Workplace Exposure Limits EH40. Introduction to Local Exhaust Ventilation HS(G)37.

EU Legislation

Dangerous Substance Directive 67/548/EEC. Dangerous Preparations Directive 1999/45/EC. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.

15.2. Chemical Safety Assessment

SECTION 16: OTHER INFORMATION

General information

This product should be used as directed by Bostlik Ltd. For further information consult the product data sheet or contact Technical Services.

Information Sources

This safety data sheet was compiled using current safety information supplied by distributor of raw materials.

Revision Comments

NOTE: Lines within the margin indicate significant changes from the previous revision. This safety data sheet supersedes all previous issues and users are cautioned to ensure that it is current. Destroy all previous data sheets and if in doubt contact Bostlik Limited.

Issued By Approved LJ

Revision Date March 2013

Revision 9

Date August 2003

Risk Phrases In Full

R11 Highly flammable

NC Not classified.

Hazard Statements In Full

H225 Highly flammable liquid and vapour.

MATERIAL SAFETY DATA SHEET QUICK IDENTITY (Factory Common Name)

HydroEater

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMPANY NAME: Skyhawk Global Ltd
ADDRESS: Suite F33, Cardiff House, Cardiff Road, Barry, Vale of Glamorgan, CF63 2AW
TELEPHONE: +44 1446731165 and +447944739202
PRODUCT NAME: HydroEater
GENERAL USE: A biological enzymatic waste degrader for Hydrocarbons

2. COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL CHARACTERIZATION OF ACTIVE COMPONENT

A powder containing naturally occurring micro-organisms, carriers and filler.

SYNONYMS: Not applicable.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Excessive ingestion may cause nausea or diarrhoea. May be irritant to skin and eyes.

4. FIRST AID MEASURES

SKIN CONTACT: Wash off with plenty of water.
EYES CONTACT: Wash immediately with copious quantity of water.
INGESTION: Rinse mouth and throat and drink water to dilute
INHALATION: Not applicable.
If symptoms persist, seek medical advice.

5. FIRE FIGHTING MEASURES

SUITABLE FIRE FIGHTING EXTINGUISHING MEDIA: Any
NON-SUITABLE MEDIA: None
SPECIAL EXPOSURE HAZARDS: None
PROTECTION AGAINST FIRE AND EXPLOSIONS: Not Applicable

6. ACCIDENTAL RELEASE MEASURES

After spillage, dilute with water and wash to drain. Do not use high pressure water jet. Wash contaminated clothing.

MATERIAL SAFETY DATA SHEET QUICK IDENTITY (Factory Common Name)

HydroEater

7. HANDLING AND STORAGE

All materials should be handled under good housekeeping practices. Wash hands after use. Wear gloves if exposure is prolonged. Care should be taken to ensure product is not introduced to drinking water or foodstuffs. Store container in a dry and cool place.

8. EXPOSURE CONTROLS: PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY PROTECTION: Not required
HAND PROTECTION: Gloves recommended.
EYES PROTECTION: Recommended when handling large quantities.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Powder
ODOUR: Earthy
APPEARANCE: Tan to light brown powder
pH: Not applicable
SOLUBILITY IN WATER: Dispersible
BOILING POINT: Not Applicable
MELTING POINT: Not Applicable
FLASH POINT: Not Applicable
FLAMMABILITY: Non-Flammable
VAPOUR PRESSURE (mm Hg): Not Applicable
SPECIFIC GRAVITY: Not Applicable

10. STABILITY AND REACTIVITY

The material is stable under normal conditions of use.

CONDITIONS TO AVOID: None
MATERIALS TO AVOID: None
HARDOUS DECOMPOSITION PRODUCTS: None

11. TOXICOLOGICAL INFORMATION

Skyhawk Global Ltd, Suite F33, Cardiff House, Cardiff Road, Barry, Vale of Glamorgan, CF63 2AW
Main: +441446731165 Mob: +447944739202 E Mail: andrew.east@skyhawkglobal.wales

MATERIAL SAFETY DATA SHEET QUICK IDENTITY (Factory Common Name)

HydroEater

TOXICITY: No acute toxicity.
PATHOGENICITY: Component bacteria / enzymes are non-pathogenic and generally regarded as safe.
CARCINOGENICITY: Not applicable.

12. ECOLOGICAL INFORMATION

This product is believed not to be dangerous to the environment with respect to mobility, persistency and degradability, bio-accumulative potential, aquatic toxicity and other data relating to eco-toxicity.

13. DISPOSAL CONSIDERATIONS

No special disposal method required, except that it be in accordance with current local authority regulations.

14. TRANSPORT INFORMATION

Non-hazardous powder.

15. REGULATORY INFORMATION

Preparation does not contain ingredients listed as dangerous substance in Annex 1 of the EEC directive 67/548.

16. OTHER INFORMATION

All information appearing in the Safety Data Sheet is believed to be true and correct. Skyhawk Global, however, makes no representations as to its accuracy or sufficiency. Conditions of use are beyond the control of Skyhawk and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes; and they assume all risks of their use, handling and disposal of the product or from the publications or use of, or reliance upon, information contained herein. This information relates only to the product designed herein and does not relate to its use in combination with any other material or in any other process.



SkyhawkGlobal
INNOVATORS IN ENVIRONMENTAL BIOTECH



MATERIAL SAFETY DATA SHEET QUICK IDENTITY (Factory Common Name)

HydroEater

MANUFACTURER / SUPPLIER DISCLAIMER:

IMPORTANT: This information is given without a warranty or guarantee. No suggestions for use are intended or shall be construed as a recommendation to infringe any existing patents or violate any Federal, State or local laws. Safe handling and use is the responsibility of the customer. Read the label before using this product. This information is true and accurate to the best of our knowledge.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Name of product MOBYFLOC 10

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

Recommended intended purpose(s)

Process aid for industrial application.

1.3. Details of the supplier of the safety data sheet

Manufacturer/distributor

SEPAR CHEMIE GmbH
Erika-Keck-Str. 4, D-22926 Ahrensburg
Phone +49(0)4102/ 66 63-0, Fax +49(0)4102/ 66 63-33
E-Mail info@separ-chemie.de
Internet www.separ-chemie.de

Advice

SEPAR CHEMIE GmbH
Phone +49(0)4102/ 66 63-0
Fax +49(0)4102/ 66 63 33
E-mail (competent person):
info@separ-chemie.de

1.4. Emergency telephone number

Emergency advice

Phone +49(0)4102/ 66 63-0
This number is only available at office times.

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]

Additional hints

This mixture is not classified as hazardous according to Regulation (EC) 1272/2008 [GHS].

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]

Precautionary Statements

Prevention

P262 Do not get in eyes, on skin, or on clothing.

Special rules for supplemental label elements for certain mixtures

Safety data sheet available on request.

2.3. Other hazards

Information pertaining to special dangers for human and environment

Caution: spills produce extremely slippery surfaces.

Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: Composition/ Information on Ingredients

3.1. Substances

not applicable

3.2. Mixtures

Description

Cationic water-soluble polymer as an emulsion in aliphatic hydrocarbons.

Hazardous ingredients

CAS No	EC No	Name	[% weight]	Classification according to 67/548/EEC
124-04-9	204-673-3	adipic-acid	< 2	XI R36
	POLYMER	Isotridecanol ethoxylated	< 1	Xn R22 Xi R41
	920-107-4	Hydrocarbons, C12-C15, n-alkanes, iso-alkanes, cyclenes, <2% aromatics	30 - 45	Xn R65 R66

CAS No	EC No	Name	[% weight]	Classification according to Regulation (EC) No 1272/2008 [CLP/ GHS]
124-04-9	204-673-3	adipic-acid	< 2	Eye Irrit. 2, H319
	POLYMER	Isotridecanol ethoxylated	< 1	Acute Tox. 4, H302 / Eye Dam. 1, H318
	920-107-4	Hydrocarbons, C12-C15, n-alkanes, iso-alkanes, cyclenes, <2% aromatics	30 - 45	Asp. Tox. 1, H304 / , EUH066

REACH

CAS No	Name	REACH registration number
124-04-9	adipic-acid	01-2119457561-38-XXXX
	Hydrocarbons, C12-C15, n-alkanes, iso-alkanes, cyclenes, <2% aromatics	01-2119453414-43-XXXX

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated soaked clothing immediately.

In the event of persistent symptoms receive medical treatment.

In case of inhalation

Ensure of fresh air.

In case of skin contact

In case of contact with skin wash off immediately with plenty of water.

In case of eye contact

In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice.

Remove contact lenses.

In case of ingestion

Do not induce vomiting.

Seek medical advice immediately.

Rinse out mouth thoroughly with water.

4.2. Most important symptoms and effects, both acute and delayed

No information available.

4.3. Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Alcohol-resistant foam

Dry fire-extinguishing substance

Carbon dioxide

Water spray jet

Unsuitable extinguishing media

Caution: water makes the surface extremely slippery!

5.2. Special hazards arising from the substance or mixture

Fire gas of organic material has to be classed invariably as respiratory poison.

In the event of fire the following can be released:

Nitrogen oxides (NO_x)

Carbon monoxide (CO)

Carbon dioxide (CO₂)

Hydrogen chloride (HCl)

Hydrogen cyanide (HCN)

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Use breathing apparatus with independent air supply (isolated).

Wear full protective clothing.

Additional information

Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

High risk of slipping due to leakage / spillage of product.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Use personal protective clothing.

Avoid contact with skin, eyes and clothing.

Forms slippery surfaces with water.

High risk of slipping due to leakage/spillage of product.

6.2. Environmental precautions

Do not empty into the drains/surface water/ground water.

6.3. Methods and material for containment and cleaning up

Do not distribute with water.

Do not flush with water- extremely slippery!

Take up with absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).

After taking up the material dispose according to regulation.

6.4. Reference to other sections

Safe handling: see section 7
Disposal: see section 13
Personal protection equipment: see section 8
Emergency telephone number: see section 1

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

The product must be added to water and stirred strongly together with water when using it. Never act the other way around! Addition of Water to the product will cause agglomeration. It can be difficult or impossible to dissolve this agglomeration.

Take the usual precautions when handling with chemicals.

Avoid skin and eye contact.

General protective measures

Avoid contact with eyes and skin

Do not inhale aerosols

Hygiene measures

Clean skin thoroughly after working.

At work do not eat, drink and smoke.

Remove soiled or soaked clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep in closed original container.

Only use containers that are approved specifically for the substance/product.

Further information on storage conditions

Protect against frost. Freezing affects the physical state and can damage the material.

Protect from extreme heat and cold.

Keep container dry and store at cool and aired place.

Store at temperatures between 5 and 35 °C.

Information on storage stability

Storage time: 6 months.

Storage group 12

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****8.2. Exposure controls****Respiratory protection**

Breathing apparatus in the event of aerosol or mist formation.

Short term: filter apparatus, Filter A/P2

Hand protection

Glove material specification [make/type, thickness, permeation time/life, wetting resistance]: Nitril, 0,4 mm, 60 min, 480 min. e.g. "Camatril Profi" (KCL GmbH Email: Vertrieb@kcl.de)

The selection of the suitable gloves does not only depend on different material, but also on further marks of quality and varies from manufacturer to manufacturer.

The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

Eye protection

Do not wear contact lenses.

safety goggles with side protection

Other protection measures

protective clothing

Appropriate engineering controls

Ensure good ventilation, where necessary use fume hood.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

viscous

Colour

whitish, opaque

Odour

almost odourless

Odour threshold

No information available.

Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value	4 - 6	20 °C	5 g/l		
boiling point	> 100 °C				
melting point	5 °C				
Flash point					Not flammable
Vapourisation rate	No information available.				
Flammable (solid)	No information available.				
Flammability (gas)	No information available.				
Ignition temperature	No information available.				
Self ignition temperature	Product is not self igniting.				
Lower explosion limit	No information available.				
Upper explosion limit	No information available.				
Vapour pressure	2,3 kPa	20 °C			

	Value	Temperature	at	Method	Remark
Relative density	1,04 g/cm ³				
Vapour density	No information available.				
Solubility in water					soluble
Solubility/other	No information available.				
Partition coefficient n-octanol/water (log P O/W)	No information available.				
Decomposition temperature	> 150 °C				
Viscosity kinematic	>> 20,5 mm ² /s	40 °C			

Oxidising properties
not oxidizing (fire-intensifying)

Explosive properties
The product is not explosive.

9.2. Other information
see technical data sheet
Vapours are less heavy than air.

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

No information available.

10.4. Conditions to avoid

frost

Avoid heat and direct sunlight.

10.5. Incompatible materials

No information available.

10.6. Hazardous decomposition products

Concerning possible decomposition products see section 5.

Thermal decomposition

Remark No decomposition if used as directed.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity/Irritability/Sensitization

	Value/Validation	Species	Method	Remark
LD50 acute oral	> 5000 mg/kg	rat		Manufacturer data
LD50 acute dermal	> 5000 mg/kg	rabbit		Manufacturer data
LC50 acute inhalation				The product is assumed to be non-toxic by inhalation. (Manufacturer specifications)
Irritability skin	non-irritant			
Irritability eye	low irritant - no labeling duty			
Skin sensitization	non-sensitizing			

Subacute Toxicity - Carcinogenicity

	Value	Species	Method	Validation
Mutagenicity				Not mutagenic.
Reproduction-Toxicity				Not toxic for reproduction.
Carcinogenicity				Not carcinogenic

Aspiration hazard

No classification in terms of aspiration. The kinematic viscosity of the product at 40°C is > 20.5 mm² / s.

Experiences made from practice

Frequent persistent contact with the skin may cause skin irritation.

Contact with the skin and eyes may result in irritation.

Additional information

The product should be handled with the care usual when dealing with chemicals.

Further hazardous properties can not be excluded.

SECTION 12: Ecological Information

12.1. Toxicity

Ecotoxicological effects

	Value	Species	Method	Validation
Fish	LC50 10 - 100 mg/l (96 h)			Manufacturer specifications
Daphnia	EC50 10 - 100 mg/l (48 h)			Manufacturer specifications

12.2. Persistence and degradability

Biological degradability

readily degradable

Biological eliminability

At pH values (> 6), as usual in nature, the polymer degrades by hydrolysis of more than 70% in 28 days. The hydrolysis products are not harmful to aquatic organisms.

12.3. Bioaccumulative potential

No information available.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

General regulation

Algae growth test are not suitable for this product. The flocculating characteristics of the product prevent the homogeneous distribution and make the tests thus invalid.

Do not allow uncontrolled leakage of product into the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recommendations for the product

There are no harmonised regulations on the disposal of chemicals in the member states of the EU. In Germany the Recycling and Waste Management Act (KrWG) stipulates recycling as a requirement. This means that a distinction must be made between "wastes for recycling" and "wastes for disposal". Particular aspects - in the main concerning delivery - are also governed by the Laender.

Recommendations for packaging

Disposal in accordance with local regulations.

Recommended cleansing agent

water, polymer cleaner

General information

The waste code must be allocated in compliance with the EAK-regulation referring to the specific process and the sector.

SECTION 14: Transport Information

	ADR/RID	IMDG	IATA-DGR
14.1. UN number	-	-	-
14.2. UN proper shipping name	-	-	-
14.3. Transport hazard class(es)	-	-	-
14.4. Packing group	-	-	-
14.5. Environmental hazards	-	-	-

14.6. Special precautions for user

No information available.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No information available.

Transport/further information

No dangerous goods as defined by the transport regulations - ADR/RID, IMDG, ICAO/IATA-DGR.

NOTE: Transport absolutely frost-protected and not over 35°C.

SECTION 15: Regulatory Information

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

National regulations

Water hazard class 1 Manufacturer Information (On basis of test results of the mixture.) slightly hazardous for water.

Decree for case of interference/remarks Not subject to the Hazardous Incident Ordinance

15.2. Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other Information**Training advice**

See technical data sheet.

Recommended uses and restrictions

National and local regulations concerning chemicals shall be observed.

Water hazard class : No class limitation when the substance is used as directed and by the appropriate method for drinking-water, surface water and waste water treatment.

Further information

Listed in: EINECS; TSCA (USA); DSL (Canada); AICS (Australien); ENCS (Japan); ECL (Korea); IECSC (China).

National and local regulations concerning chemicals shall be observed.

The information contained herein is based on the state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

Inventory status: EINECS (Europe) existing polymer according to the definition in the 7th Amendment to Directive 67/548/EEC. All starting materials and additives are listed in EINECS.

Please observe the following disclaimer! Our safety data sheets have been compiled according to effective EU directives, WITHOUT taking into account the special national directives concerning the handling of hazardous substances.

Sources of key data used

Data sheets of the sub-supplier.

Wording of the R/H-phrases specified in chapter 3 (not the classification of the mixture!)

R 22 Harmful if swallowed.

R 36 Irritating to eyes.

R 41 Risk of serious damage to eyes.

R 65 Harmful: may cause lung damage if swallowed.

R 66 Repeated exposure may cause skin dryness or cracking.

EUH066 Repeated exposure may cause skin dryness or cracking.

H302 Harmful if swallowed.

H304 May be fatal if swallowed and enters airways.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.



SAFETY DATA SHEET
Pirtek Hydraulic Oil 46

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	Pirtek Hydraulic Oil 46
Product number	P8060
Internal identification	GHS22746
REACH registration number	n/a Mixture

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

Identified uses	Hydraulic oil.
Uses advised against	Non specified unless otherwise stated within this MSDS

1.3. Details of the supplier of the safety data sheet

Supplier	Pirtek UK Ltd 199 The Vale Acton London W3 7QS Tel: 0208 749 8444 Fax: 0208 749 8333 info@pirtek.co.uk
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1.4. Emergency telephone number

Emergency telephone	Pirtek UK Ltd Emergency Tel: 0800 382 438 Mon – Fri 9am – 5pm
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification

Physical hazards	Not Classified
Health hazards	Not Classified
Environmental hazards	Not Classified

Classification (67/548/EEC or 1999/45/EC) Not Classified

2.2. Label elements

Hazard statements	NC Not Classified
Supplemental label information	EUH210 Safety data sheet available on request.

2.3. Other hazards

Pirtek Hydraulic Oil 46

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Distillates (petroleum) solvent-dewaxed heavy paraffinic	60-100%
CAS number: 64742-65-0	EC number: 265-169-7
	REACH registration number: 01-2119471299-27-XXXX
A petroleum product. DMSO extract < 3 % weight (IP 346)	
Classification	Classification (67/548/EEC or 1999/45/EC)
Not Classified	-

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition comments If REACH registration numbers do not appear the substance is either exempt from registration, does not meet the minimum volume threshold for registration, the registration date has not yet come due or this information is proprietary.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	Get medical attention if any discomfort continues.
Inhalation	If spray/mist has been inhaled, proceed as follows. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention if any discomfort continues.
Ingestion	Get medical attention if any discomfort continues. Do not induce vomiting.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention promptly if symptoms occur after washing.

4.2. Most important symptoms and effects, both acute and delayed

General information	If aspiration into the lungs is suspected, eg when vomiting, admit to hospital immediately.
Inhalation	Upper respiratory irritation.
Ingestion	May cause discomfort if swallowed. The product contains mineral oil, which if aspirated into the lungs through vomiting after ingestion, may result in chemical pneumonia.
Skin contact	Prolonged contact may cause redness, irritation and dry skin.
Eye contact	Irritation of eyes and mucous membranes.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with foam, carbon dioxide, dry powder or water fog.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

Pirtek Hydraulic Oil 46

5.2. Special hazards arising from the substance or mixture

Specific hazards	Heat from fire could result in drums bursting
Hazardous combustion products	Protection against nuisance dust must be used when the airborne concentration exceeds 10 mg/m ³ . Oxides of carbon. Oxides of nitrogen. Fire may also create other unidentified organic gases some of which may be toxic.

5.3. Advice for firefighters

Protective actions during firefighting	Control run-off water by containing and keeping it out of sewers and watercourses.
Special protective equipment for firefighters	Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	For personal protection, see Section 8. In case of spills, beware of slippery floors and surfaces.
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6.2. Environmental precautions

Environmental precautions	Contain spillage with sand or earth. Avoid the spillage or runoff entering drains, sewers or watercourses. The product is insoluble in water and will spread on the water surface.
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6.3. Methods and material for containment and cleaning up

Methods for cleaning up	Contain spillage with sand or earth. Collect spillage for reclamation or disposal in sealed containers via a licensed waste contractor. Avoid water contacting spilled material or leaking containers. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body. In case of spillage on water prevent the spread by use of suitable barrier equipment
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6.4. Reference to other sections

Reference to other sections	For personal protection, see Section 8. See Section 11 for additional information on health hazards. For waste disposal, see section 13.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions	Avoid spilling. Always remove oil with soap and water or skin cleaning agent, never use organic solvents. Do not use oil-contaminated clothing or shoes, and do not put rags moistened with oil into pockets.
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7.2. Conditions for safe storage, including any incompatibilities

Storage precautions	Store in tightly-closed, original container in a dry, cool and well-ventilated place.
Storage class	Miscellaneous hazardous material storage.

7.3. Specific end use(s)

Specific end use(s)	The identified uses for this product are detailed in Section 1.2.
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SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

Distillates (petroleum) solvent-dewaxed heavy paraffinic

Pirtek Hydraulic Oil 46

Long-term exposure limit (8-hour TWA): ACGIH 5 mg/m³

Short-term exposure limit (15-minute): ACGIH 10 mg/m³

ACGIH = American Conference of Governmental Industrial Hygienists.

2-ethylhexyl zinc dithiophosphate (CAS: 4259-15-8)

DNEL	Workers - Dermal; systemic effects: 0.14 mg/kg/day
	Workers - Inhalation; systemic effects: 0.422 ppm
	Workers - Inhalation; Long term systemic effects: 0.07 ppm
	Workers - Dermal; local effects: 0.09 mg/cm ²
	Workers - Inhalation; local effects: 0.42 ppm
	Workers - Inhalation; Long term systemic effects: 0.21 ppm
	Workers - Dermal; Long term systemic effects: 0.09 mg/cm ²
	Workers - Dermal; Long term systemic effects:
PNEC	- Fresh water; 0.004 mg/l
	- Soil; 0.0548 mg/kg
	- Sediment (Freshwater); 0.0701 mg/kg
	- Marine water; 0.0046 mg/l
	- Sediment (Marinewater); 0.00701 mg/kg
	- STP; 3.8 mg/l
	- Air; 7.1 mg/m ³

benzenesulfonic acid, mono-C16-24-alkyl derivs.

DNEL	Workers - Dermal; Long term systemic effects: 3.33 mg/kg
	Workers - Inhalation; Long term systemic effects: 0.66 mg/m ³
	Consumer - Dermal; Long term systemic effects:
	Consumer - Inhalation; Long term systemic effects: 0.33 mg/m ³
PNEC	Consumer - Oral; Long term systemic effects:
	- Fresh water; 1 mg/l
	- Soil; 868700000 mg/kg
	- Sediment (Freshwater); 723500000 mg/kg
	- STP; 100 mg/l
	- Marine water; 1 mg/l
- Intermittent release; 10 mg/l	
- Sediment (Marinewater); 723500000 mg/kg	

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles or face shield.

Hand protection

The most suitable glove should be chosen in consultation with the glove supplier/manufacture, who can provide information about the breakthrough time of the glove material.

Pirtek Hydraulic Oil 46

Other skin and body protection	Use barrier creams to prevent skin contact.
Hygiene measures	Use engineering controls to reduce air contamination to permissible exposure level. Wash promptly with soap and water if skin becomes contaminated.
Respiratory protection	No specific recommendations. Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit.
Thermal hazards	Not anticipated under normal conditions of use. The product is combustible if heated excessively and an ignition source is applied.
Environmental exposure controls	Do not allow product to contaminate land.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Yellow.
Odour	Characteristic. Oil-like.
Odour threshold	Not known.
pH	Not applicable.
Melting point	-24°C Pour point
Initial boiling point and range	>320°C @ 101.3 kPa
Flash point	208°C PMCC (Pensky-Martens closed cup).
Evaporation rate	Not relevant.
Upper/lower flammability or explosive limits	Not known.
Other flammability	Product is not flammable but on excessive heating may become combustible.
Vapour pressure	<0.1 kPa @ 20°C
Vapour density	Not determined.
Relative density	0.876 @ 15°C
Solubility(ies)	Insoluble in water. Soluble in the following materials: Organic solvents.
Partition coefficient	Not determined. log Kow: > 7 This figure is typical of mineral oil.
Auto-ignition temperature	No specific test data are available.
Decomposition Temperature	Not determined.
Viscosity	46 cSt @ 40°C
Explosive properties	Not considered to be explosive.
Explosive under the influence of a flame	Not considered to be explosive.
Oxidising properties	The mixture itself has not been tested but none of the ingredient substances meet the criteria for classification as oxidising.

9.2. Other information

Pirtek Hydraulic Oil 46

Volatile organic compound The product is a complex mixture, the majority of which would not be classed as a VOC. However it cannot be discounted that trace or low levels of VOC's may be present.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Unlikely to occur under normal conditions of use. Unlikely to occur.

10.4. Conditions to avoid

Conditions to avoid Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

Materials to avoid Strong oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Oxides of carbon. Oxides of nitrogen.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Notes (oral LD₅₀) Not expected to be highly toxic based on information of ingredients. Based on available data the classification criteria are not met.

Acute toxicity - dermal

Notes (dermal LD₅₀) Not expected to be highly toxic based on information of ingredients. Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Not determined. The product is unlikely to present any significant inhalation hazard at ambient temperatures and under normal conditions of use.

Serious eye damage/irritation

Serious eye damage/irritation May cause mild, short lasting discomfort to eyes.

Respiratory sensitisation

Respiratory sensitisation No evidence to suggest the product will be a respiratory sensitiser. Repeated exposure to oil mists may cause respiratory damage.

Skin sensitisation

Skin sensitisation Not expected to be a skin sensitizer based on information on components.

Carcinogenicity

Carcinogenicity This product contains mineral oils which are considered to be severely refined and not considered to be carcinogenic under IARC. All of the oils in this product have been demonstrated to contain less than 3% extractables by the IP346 test

Reproductive toxicity

Reproductive toxicity - fertility No data available to suggest the product will cause reproductive toxicity.

Pirtek Hydraulic Oil 46

Specific target organ toxicity - single exposure

STOT - single exposure Based on available data the classification criteria are not met.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard

Aspiration hazard Kinematic viscosity > 20.5 mm²/s. The product viscosity is greater than the upper limit assigned for classification. Although not classified, the product contains mineral oil. If aspirated into the lungs e.g. through vomiting after ingestion, admit to hospital immediately.

General information

This product has low toxicity. Only large quantities are likely to have adverse effects on human health.

Inhalation

Unlikely to be hazardous by inhalation because of the low vapour pressure of the product at ambient temperature.

Ingestion

No harmful effects expected from quantities likely to be ingested by accident.

Skin contact

Skin irritation should not occur when used as recommended. Repeated exposure may cause skin dryness or cracking.

Eye contact

May cause temporary eye irritation.

Acute and chronic health hazards

Prolonged or repeated contact with used oil may cause serious skin diseases, such as dermatitis and skin cancer.

Pirtek Hydraulic Oil 46

SECTION 12: Ecological Information

Ecotoxicity Based on available data the classification criteria are not met. Not regarded as dangerous for the environment.

12.1. Toxicity

Toxicity Based on available data the classification criteria are not met. Not considered toxic to fish.

Acute toxicity - aquatic invertebrates Based on available data the classification criteria are not met.

12.2. Persistence and degradability

Persistence and degradability The product contains mineral oil which has limited biodegradability in CEC test methods but will biodegrade slowly in aerobic water and sediments and is considered ultimately biodegradable.

Stability (hydrolysis) The product is based on highly refined mineral oils that are considered stable to hydrolysis.

Biodegradation The product is not considered readily biodegradable, albeit the major constituents are expected to ultimately biodegrade.

Biological oxygen demand Not determined.

Chemical oxygen demand Not determined.

12.3. Bioaccumulative potential

Bioaccumulative potential Bioaccumulation is unlikely to be significant because of the low water-solubility of this product.

Partition coefficient Not determined. log Kow: > 7 This figure is typical of mineral oil.

12.4. Mobility in soil

Mobility The product is non-volatile. The product is insoluble in water and will spread on the water surface.

Henry's law constant Not determined.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information This material and its container must be disposed of as hazardous waste. Dispose of waste via a licensed waste disposal contractor.

Disposal methods Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Dispose of waste via a licensed waste disposal contractor.

Waste class European Waste Catalogue (EWC) = 13 01 13* (other hydraulic oils)

SECTION 14: Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

Pirtek Hydraulic Oil 46

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

Not applicable.

SECTION 15: Regulatory information

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

National regulations

Health and Safety at Work etc. Act 1974 (as amended).
The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716).
Control of Substances Hazardous to Health Regulations 2002 (as amended).
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"].

EU legislation

Dangerous Preparations Directive 1999/45/EC.
Dangerous Substances Directive 67/548/EEC.
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

Guidance

Workplace Exposure Limits EH40.
Safety Data Sheets for Substances and Preparations.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

Canada - DSL/NDSL

All the ingredients are listed or exempt.

US - TSCA

All the ingredients are listed or exempt.

Pirtek Hydraulic Oil 46

Australia - AICS

All the ingredients are listed or exempt.

Korea - KECI

All the ingredients are listed or exempt.

China - IECSC

All the ingredients are listed or exempt.

Philippines – PICCS

All the ingredients are listed or exempt.

New Zealand - NZIOC

All the ingredients are listed or exempt.

SECTION 16: Other information

Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	29/03/2016
Revision	1
SDS number	22746

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.



SAFETY DATA SHEET

K42EP

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name K42EP
Product number 7942
Internal identification GHS21808

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

Identified uses Lubricating grease.

1.3. Details of the supplier of the safety data sheet

Supplier Morris Lubricants
Castle Foregate
Shrewsbury
SY1 2EL

08.45 - 17.00 GMT
T: (+44)(0)1743 232200
F: (+44)(0)1743 353584
sds@morris-lubricants.co.uk

1.4. Emergency telephone number

Emergency telephone +44 (0)1743 232200 (08.45 - 17.00 hrs GMT)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification

Physical hazards Not Classified
Health hazards Not Classified
Environmental hazards Not Classified

Classification (67/548/EEC or -
1999/45/EC)

2.2. Label elements

Hazard statements NC Not Classified

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

K42EP

Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Pr)esters, Zinc salts		1-5%
CAS number: —	EC number: 272-723-1	REACH registration number: 01-2119493633-31
Classification Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Aquatic Chronic 2 - H411	Classification (67/548/EEC or 1999/45/EC) Xi;R36/38. N;R51/53.	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	Get medical attention if any discomfort continues.
Ingestion	Do not induce vomiting. Get medical attention if any discomfort continues.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention promptly if symptoms occur after washing.

4.2. Most important symptoms and effects, both acute and delayed

4.3. Indication of any immediate medical attention and special treatment needed

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with foam, carbon dioxide, dry powder or water fog.

5.2. Special hazards arising from the substance or mixture

Specific hazards Toxic gases or vapours. Heat from fire could result in drums bursting

5.3. Advice for firefighters

Protective actions during firefighting Control run-off water by containing and keeping it out of sewers and watercourses.

Special protective equipment for firefighters Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions For personal protection, see Section 8. In case of spills, beware of slippery floors and surfaces.

6.2. Environmental precautions

Environmental precautions Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Collect spillage for reclamation or disposal in sealed containers via a licensed waste contractor. Avoid water contacting spilled material or leaking containers.

K42EP

6.4. Reference to other sections

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid spilling. Avoid contact with skin and eyes. Always remove oil with soap and water or skin cleaning agent, never use organic solvents. Do not use oil-contaminated clothing or shoes, and do not put rags moistened with oil into pockets.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place.

Storage class Miscellaneous hazardous material storage.

7.3. Specific end use(s)

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

8.2. Exposure controls

Protective equipment



Eye/face protection Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles or face shield.

Hand protection It is recommended that gloves are made of the following material: Polyvinyl chloride (PVC).

Other skin and body protection Use barrier creams to prevent skin contact.

Hygiene measures Wash promptly with soap and water if skin becomes contaminated.

Respiratory protection No specific recommendations. Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Grease.
Colour	Amber. to Brown.
Odour	Odourless.
Melting point	200°C
Flash point	>200°C PMCC (Pensky-Martens closed cup).
Relative density	0.88 @ 15°C
Solubility(ies)	Insoluble in water.
Auto-ignition temperature	>200°C

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

K42EP

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

Conditions to avoid Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

Materials to avoid Strong oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Oxides of carbon.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

General information This product has low toxicity. Only large quantities are likely to have adverse effects on human health.

Inhalation Unlikely to be hazardous by inhalation because of the low vapour pressure of the product at ambient temperature.

Ingestion No harmful effects expected from quantities likely to be ingested by accident.

Skin contact Skin irritation should not occur when used as recommended. Repeated exposure may cause skin dryness or cracking.

Eye contact May cause temporary eye irritation.

SECTION 12: Ecological Information

12.1. Toxicity

12.2. Persistence and degradability

Persistence and degradability The product is not readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential Bioaccumulation is unlikely to be significant because of the low water-solubility of this product.

12.4. Mobility in soil

Mobility The product is non-volatile. The product contains substances which are insoluble in water and which sediment in water systems.

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste should be treated as controlled waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Waste class European Waste Catalogue (EWC) Code: 20 01 26* (greases)

K42EP

SECTION 14: Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

14.2. UN proper shipping name

14.3. Transport hazard class(es)

14.4. Packing group

14.5. Environmental hazards

14.6. Special precautions for user

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: Regulatory information

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

National regulations Health and Safety at Work etc. Act 1974 (as amended).
The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716).

EU legislation Dangerous Preparations Directive 1999/45/EC.
Dangerous Substances Directive 67/548/EEC.

Guidance Workplace Exposure Limits EH40.
Safety Data Sheets for Substances and Preparations.

15.2. Chemical safety assessment

SECTION 16: Other information

Revision comments NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date 10/11/2015

Revision 1

SDS number 21808

Hazard statements in full H315 Causes skin irritation.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

EU Safety Data Sheet

Issued: June 1, 2015

See #2 for CAS Numbers **OIL SPILL EATER II**

1. IDENTIFICATION OF THE SUBSTANCE PREPARATION AND COMPANY

Product Name: Oil Spill Eater II, OSE II

Product Code:
(Export Code) 3821000000

Product Type: Hydrocarbon Bioremediation Product

Supplier: Oil Spill Eater International Corporation

Address: P.O. Box 515429
Dallas, Texas 75251
USA

Contact Numbers:

Telephone: (972) 669-3390

Fax: (469) 241-0896

E-mail: oseicorp@msn.com

Emergency Telephone Number: (972) 669-3390

Emergency Covers: 24 hours a day 7 days a week

2. COMPOSITION INFORMATION ON INGREDIENTS

Preparation Description: A hydrocarbon bioremediation product containing all natural nonhazardous ingredients. Contains:

<u>Ingredient</u>		<u>CAS Number</u>
1) Water	80-90%	7732-18-5
2) Nitrogen (Urea)	0.01-0.09%	57-13-6
3) Molasses	1-2%	None
4) Bio Surfactant	0.06-0.08%	68131-40-8
5) Sugar	1.5%-2%	50-99-7
6) Protease	0.01-0.03%	9014-01-1
7) Amylase	0.01-0.03%	9000/90/2
8) Malt	1-2%	8029-43-4

Dangerous Components/Constituents: None

3. HAZARDOUS IDENTIFICATION

A. OSE II is not GHS controlled, does not contain hazardous or regulated ingredients

B. OSE II is not REACH registered, OSE II does not contain any hazardous or regulated ingredients

Human Health Hazards: None. Potentially toxic if more than 1 liter ingested.

Safety Hazards: Will not burn. Is, in fact, a fire retardant.

Environmental Hazards: None. Protects environment; 100% biodegradable; no known allergens.

4. FIRST AID MEASURES

Symptoms and Effects: Prolonged exposure would have minimal effect, if any at all.

First Aid - Inhalation: Inhalation of vapors from this product pose no acute or chronic hazard.

First Aid - Skin: Prolonged exposure to skin may cause some drying of the skin. Wash off with water.

First Aid - Eye: Flush eyes with copious quantities of water. If irritation persists, seek medical attention.

First Aid - Ingestion: If less than 59 ml or 2 ounces is ingested, no toxic symptoms should occur, to most humans. Wash out mouth and seek medical attention if more than 59 ml or 2 ounces *is ingested*.

Advice to Physicians:

Treat symptomatically. Wash skin or eyes thoroughly. Treat as you would for any large ingestion of mild soap or tooth paste.

5. FIRE FIGHTING MEASURES

Specific Hazards:

OSE II is a fire retardant. However, if applied to a burning fire, there can be a slight flash before fire goes out.

Extinguishing Media:

None required. Product is a fire retardant. Method - ASTM-D56.

Unsuitable Extinguishing Media:

None required. Product is a fire retardant.

Protective Equipment:

Proper protective equipment including breathing apparatus must be worn when approaching any fire.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Avoid contact with eyes. Wash from skin or eyes as needed.

Personal Protection:

Wear goggles if applying in windy conditions. Wear protective rubber gloves if applying directly in a prolonged situation.

Environmental Precautions:

Wash down with water. Will help clean soil, drains, or water.

Clean-up methods - small spillage:

Wash down with water. Non-toxic to the environment.

Clean-up methods - large spillage:

Same as for small spills.

7. HANDLING AND STORAGE

Handling:

When handling product in drums, safety footwear should be worn. However No special handling procedures required.

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Storage:	Keep in cool, dry area. Avoid direct sunlight and excessive heat.
Storage Temperatures:	Do not store where temperature exceeds 120 F.
Recommended Materials:	Polyethylene drums or PVC are acceptable.
Unsuitable Materials:	None known.
Other Information:	Product can freeze / thaw without any negative effect on product.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Occupational Exposure Standards:	None established (none toxic).
Hygiene Measures:	Wash hands before eating or drinking.
Respiratory Protection:	Not normally required.
Hand Protection:	Any plastic or rubber glove if needed; not normally required.
Eye Protection:	Wear safety glasses or goggles if applying in windy conditions.
Body Protection:	Not normally required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid with the same density of H ₂ O.
Color:	Amber to brown .
Odor:	Some smell of ferment.
Vapor Pressure:	Same as H ₂ O. 1.0215
Density:	Same as H ₂ O. 1.0215
Vapor Density:	Same as H ₂ O. 1.0215
Dropping Point:	Same as H ₂ O.

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Flash Point:	Same as H ₂ O in excess of 7000° F.
Flammability Limit - Lower:	Nonflammable.
Flammability Limit - Upper:	Nonflammable.
Auto-ignition Temperature:	Non-igniting
Solubility in Water:	100%
N-octanol/water Partition Coefficient:	100% soluble - non partitioning
Elements Content:	None.

10. STABILITY/REACTIVITY

Stability:	Stable.
Conditions to Avoid:	Temperatures in excess of 120° F and direct sunlight during storage or transporting.
Materials to Avoid:	Strong oxidizing agents.
Hazardous Decomposition Products:	None decomposes to CO ₂ and H ₂ O.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment:	Toxicity tests have been performed Determining OSE II is (virtually nontoxic).
Acute Toxicity - Oral:	2 oz or 60 ml has been ingested with no harm
Acute Toxicity - Dermal:	None.
Eye Irritation:	Slight irritant alleviated by copious eye washing.
Skin Irritation:	Skin can dry slightly if prolonged direct exposure occurs.
Respiratory Irritation:	Virtually none.
Skin Sensitization:	Not expected to be a skin sensitizer.
(Sub)chronic Toxicity:	None expected.
Carcinogenicity:	Not a carcinogen.

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Mutagenicity: Not a mutagenic.
Human Effects: None expected.
Other Information: Not applicable.

12. Ecological Information

Basis for Assessment: Ecotoxicological data has been determined specifically for this product. Information given is for specific sensitive (aquatic) species in fresh and salt water.

Mobility: Liquid that floats on water and solubilizes rapidly. If it comes in contact with soil will percolate at the same rate as H₂O and will biodegrade rapidly.

Persistence/Degradability: Product completely biodegrades in water or soil environments and will not persist. 100% biodegradable as testing has confirmed

Bioaccumulation: None

Ecotoxicity: 100% soluble.
US EAP **LC50 Brine shrimp:** >1,900 mg/l up to 10,000 mg/l.
LC50 Fundulus Heterocletus 96 hour: 5,258 mg/l.
Environment Canada **LC50 Rainbow Trout:** 10,000 mg/l.
OSEI with the city of Plano Tx **LC50 Fathead Minnows** (Pimephale promelas): 9,300 mg/l.
Australia NATA test results: **IC10 (milky oyster, Saccostrea echinata):** 11.0 (10.0-11.9)mg/l/48h
EC50 (milky oyster, Saccostrea echinata): 16.5 (16.0-17.1)mg/l/48h
NOEC (milky oyster, Saccostrea echinata): 10.0mg/l
LOEC (milky oyster, Saccostrea echinata): 20.0mg/l

EC10(mussel, Mytilus galloprovincialis):
>20.0mg/l/72h

EC50(mussel, Mytilus galloprovincialis):
>20.0mg/l/72h

NOEC(mussel, Mytilus galloprovincialis):
20.0mg/l

LOEC(mussel, Mytilus galloprovincialis):
>20.0mg/l

13. DISPOSAL CONSIDERATIONS

Waste Disposal: No special disposal.

Product Disposal: No special disposal.

Container Disposal: No special disposal.

Local Legislation: Not applicable.

14. TRANSPORT INFORMATION

Not dangerous for conveyance under UN, IMO, ADRiRID.

Marine Transport (IMO/IMDG): Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

Air Transport (ICAO/IATA): Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

IMDG Marine No

15. REGULATORY INFORMATION

GHS not controlled, does not contain hazardous or regulated ingredients

REACH Not registered, OSE II does not contain any hazardous or regulated ingredients

EC Classification: Not known.

EC Symbols: Not known.

EC Risk Phrases: Not known.

EINECS (EC): Not known.

TSCA (USA):

Other Information: US DOT class 55 non hazardous

Dangerous Constituents: None.

16. OTHER INFORMATION

Only bioremediation product successfully used to permanently remove oil on U.S. navigable waters under U.S. EPA Government observation.

Government approvals or approved listings:

US EPA NCP # B53,
New Zealand EPA SOS # 1001797,
Australia #OBA
Oil Spill Control agent Greek registration ID
no:17554
Gulf States MEMAC approval Ref:337/12-
RHD,
Philippine accreditation #PCG-14-06-112
Nigeria NOSDRA cert: 189,
Mexico Coatzacoalcos.Ver.,a 30 de Julio de
2014,
Israel approval,
UK approval #ODA 241/2015 ,
Trinidad and Tobago approval#
MEEA:12.1.5 Vol. XXXXII, South Korea cert
no: S-007

Uses and Restrictions: Bioremediation product that converts hydrocarbons, chlorinated hydrocarbons, and most organic based material or waste to CO₂ and H₂O.

Technical Contact Point: Steven Pedigo

Technical Contact Number: (972) 669-3390

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Fax Number:	(469) 241-0896
E-Mail:	oseicorp@msn.com
SDS History:	Not Applicable
Revisions Highlighted	None.

last revision of SDS

Literature References

SDS Created: June of 2015

Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice. Standard for the Uniform Scheduling of Medicines and Poisons. Australian Code for the Transport of Dangerous Goods by Road & Rail. Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals. Workplace exposure standards for airborne contaminants, Safe work Australia. American Conference of Industrial Hygienists (ACGIH). Globally Harmonised System of classification and labelling of chemicals. ...End Of MSDS...



SAFETY DATA SHEET

SAFETY DATA SHEET – AUTO DIESEL / DERV

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

1.1. Product identifier

Substance name: Auto Diesel / DERV

Other means of identification G.O.R.V.; Ultra-Low Sulphur Diesel, AD10

Ref Code: P66 - 814648

MARPOL Annex I Category Gas Oils, Including Ship's Bunkers

REACH Registration Number: 01-2119484664-27-0004

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

Relevant identified uses Fuel

Uses advised against Uses other than those covered by the exposure scenarios appended to this Safety Data Sheet are not supported.

1.3 Details of the Supplier of the Safety Data Sheet

Supplier: Rix Petroleum Limited
Supplier address: Witham House
45 Spyvee Street
Hull
HU8 7JR
Telephone No: (Hull) 01482 224422
Email: sales@rix.co.uk

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification (EC No 1272/2008)

H226 - Flammable liquids -- Category 3

H304 -- Aspiration Hazard -- Category 1

H315 -- Skin corrosion/irritation -- Category 2

H332 -- Acute toxicity, Inhalation -- Category 4

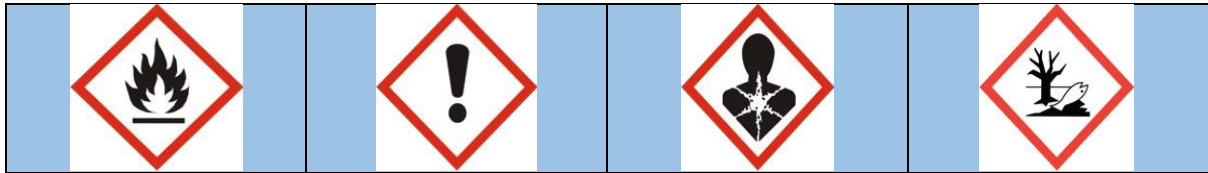
H351 -- Carcinogenicity -- Category 2

H373 -- Specific target organ toxicity (repeated exposure) -- Category 2

H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2

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2.2. Label elements



DANGER

Flammable liquid and vapour

May be fatal if swallowed and enters airways

Causes skin irritation

Harmful if inhaled

Suspected of causing cancer

May cause damage to organs through prolonged or repeated exposure

Toxic to aquatic life with long lasting effects

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P260 - Do not breathe dust/fume/gas/mist/vapours/spray

P273 - Avoid release to the environment

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

P331 - Do NOT induce vomiting

2.3. Other hazards

Electrostatic charge may be generated during pumping and other operations

Does not meet the criteria for persistent, bioaccumulative and toxic (PBT) or very persistent, very bioaccumulative (vPvB) substances.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CASRN	EINECS	REACH Registration No	Concentration	Classification ²
Fuels, diesel	68334-30-5	269-822-7	01-2119484664-27	90-100	H226,H304,H315,H332 H351, H373,H411
Fatty acids, C14-18 and C16-18-unsaturated, methyl esters	67762-26-9	267-007-0	01-2119471662-36	0-10	
Fatty acids, C16-18 and C18-unsaturated, methyl esters	67762-38-3	267-015-4	01-2119471664-32	0-10	
Naphthalene	91-20-3	202-049-5	Not applicable	<1	H351,H302,H410

¹ All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

² Regulation EC 1272/2008.

Total Sulphur: < 0.1 wt%

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SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, a physician should evaluate the individual immediately. (See Note to Physician)

Inhalation: If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, qualified personnel should administer oxygen. Seek immediate medical attention.

Ingestion: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

While significant vapour concentrations are not likely, high concentrations can cause minor respiratory irritation, headache, and drowsiness, and dizziness, loss of coordination, disorientation and fatigue. Ingestion can cause irritation of the digestive tract, nausea, diarrhoea, and vomiting. Prolonged or repeated contact may dry skin and cause irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician: When using high-pressure equipment, injection of product under the skin can occur. In this case, the casualty should be sent immediately to the hospital. Do not wait for symptoms to develop. High-pressure hydrocarbon injection injuries may produce substantial necrosis of underlying tissue despite an innocuous appearing external wound. These injuries often require a specialist should evaluate extensive emergency surgical debridement and all injuries in order to assess the extent of injury. Early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

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SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Water may be ineffective for extinguishment, unless used under favourable conditions by experienced fire fighters.

5.2. Special hazards arising from the substance or mixture

Unusual Fire & Explosion Hazards: Flammable This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe) Vapours may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapour/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. This product will float and can be reignited on surface water. Vapours are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulphur may also be formed.

5.3. Special protective actions for fire fighters

For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self-contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapours and to protect personnel. Avoid spreading burning liquid with water used for cooling purposes. Cool equipment exposed to fire with water, if it can be done safely.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Flammable Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons downwind of the spill/release, isolate immediate hazard area and keep unauthorised personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

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6.2. Environmental precautions

Stop and contain spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorised drainage systems, and natural waterways. Use foam on spills to minimise vapours. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water, notify appropriate authorities and advise shipping of any hazard.

6.3. Methods and material for containment and cleaning up

Notify relevant authorities in accordance with all applicable regulations. Immediate clean up of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however, local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Do not breathe vapour or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

Flammable Open container slowly to relieve any pressure. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes for specific bonding/grounding requirements). Do not enter confined spaces such as tanks or pits without following proper entry procedures. Do not wear contaminated clothing or shoes. May vaporize easily at ambient temperatures. The vapour is heavier than air and may create an explosive mixture of vapour and air. Beware of accumulation in confined spaces and low-lying areas. Keep contaminated clothing away from sources of ignition such as sparks or open flames.

For use as a motor fuel only. Do not use as a solvent due to its flammable and potentially toxic properties. Siphoning by mouth can result in lung aspiration, which can be harmful or fatal. The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g. carbon monoxide, oxides of sulphur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels. Diesel engine exhaust contains hazardous combustion products and has been identified as a cancer hazard. Exposure should be minimized to reduce potential risk. High-pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when

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using high-pressure equipment such as high-pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing of high-pressure hydraulic oil equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep container(s) tightly closed and properly labelled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks, which contain or have contained this material, refer to appropriate guidance pertaining to cleaning, repairing, welding, or other contemplated operations. Outdoor or detached storage is preferred. Indoor storage should meet Country or Committee standards and appropriate fire codes.

7.3. Specific end use(s)

Refer to supplemental exposure scenarios if attached.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Occupational Exposure Limits			
Chemical Name	ACGIH	United Kingdom	Phillips 66
Fuels, diesel	TWA-8hr: 100 mg/m ³ inhalable fraction and vapour Skin	---	TWA-8hr: 100 mg/m ³ Skin
Naphthalene	TWA-8hr: 10 ppm Skin	---	TWA-8hr: 10 ppm Skin

STEL = Short Term Exposure Limit (15 minutes); TWA = Time Weighted Average (8 hours); --- = No Occupational Exposure Limit

Chemical Name	ACGIH	European Union	United Kingdom
Naphthalene	1-Naphthol with hydrolysis plus 2-Naphthol with hydrolysis in : , end of shift (nonquantitative, nonspecific)	---	---

Relevant DNEL and PNEC:

Inhalation: 68.3 mg/m³

Inhalation: 20 mg/m³

Dermal: 2.9 mg/kgbw/day

Dermal: 1.3 mg/kgbw/day

Ingestion: Not applicable

Environmental Predicted No-Effect Concentration (PNEC): Not applicable

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8.2. Exposure controls

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye protection that meets or exceeds EN 166 is recommended to protect against potential eye contact, irritation, or injury. Depending on conditions of use, close fitting eye protection and a face shield may be necessary.

Skin/Hand Protection: The use of gloves impervious to the specific material handled that comply with EN 374 is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Depending on exposure and use conditions, additional protection may be necessary to prevent skin contact including use of items such as chemical resistant boots, aprons, arm covers, hoods, coveralls, or encapsulated suits. Suggested protective materials: Nitrile rubber

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit an approved air purifying respirator equipped with Type A, organic gases and vapour filters (as specified by the manufacturer) may be used. A respiratory protection programme that follows recommendations for the selection, use, care and maintenance of respiratory protective devices in EN 529:2005 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health.

Other Protective Equipment: Eyewash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.

Environmental Exposure Controls: Refer to Sections 6, 7, 12 and 13.

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES - TYPICAL

9.1. Information on basic physical and chemical properties

Data represent typical values and are not intended to be specifications. N/A = Not Applicable; N/D = Not Determined

Appearance: Clear straw coloured

Physical Form: Liquid

Odour: Diesel fuel

Odour Threshold: N/D

pH N/A

Melting/Freezing Point: N/D

Initial Boiling Point/Range: 165 - 375 °C

Flash Point: > 55 °C; (Closed Cup)

Evaporation Rate (nBuAc=1): N/D

Flammability (solid, gas): N/A

Upper Explosive Limits (vol % in air): 6.0

Lower Explosive Limits (vol % in air): 0.5

Vapour Pressure: <0.3 kPa @20°C

Relative Vapour Density (air= 1) : >1

Relative Density (water=1): 0.82-0.845 @ 15°C

Solubility (ies): Solubility in water: Negligible @20°C

Partition Coefficient (n-octanol/water) (Kow): N/D

Auto-ignition Temperature: 250-270 °C

Decomposition Temperature: N/D

Viscosity: 4.8 mm²/s @ 20°C; 2-4.5 mm²/s @ 40°C

Explosive Properties: N/D

Oxidising Properties: N/D

9.2. Other information

Pour Point: -24 °C

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: Not chemically reactive.

10.2. Chemical stability: Stable under normal ambient and anticipated conditions of use.

10.3. Possibility of hazardous reactions: Hazardous reactions not anticipated.

10.4. Conditions to avoid: Avoid high temperatures and all sources of ignition. Prevent vapour accumulation.

10.5. Incompatible materials: Avoid contact with strong oxidizing agents and strong reducing agents.

10.6. Hazardous decomposition products: Not anticipated under normal conditions of use.

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Substance / Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Harmful if inhaled		4.4 mg/L (mist, estimated) (rat)
Dermal	Unlikely to be harmful		>2 g/kg (rabbit)
Oral	Unlikely to be harmful		> 5 g/kg (rat)

Likely Routes of Exposure: Inhalation, eye contact, skin contact

Aspiration Hazard: May be fatal if swallowed and enters airways.

Skin Corrosion/Irritation: Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Causes mild eye irritation.

Skin Sensitisation: Not expected to be a skin sensitizer.

Respiratory Sensitisation: No information available on the mixture, however none of the components has been classified for respiratory sensitisation (or is below the concentration threshold for classification).

Specific Target Organ Toxicity (Single Exposure): Not expected to cause organ effects from single exposure.

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure. Repeated dermal application of petroleum gas oils for 90 days resulted in decreased liver, thymus, and spleen weights, and altered bone marrow function. Microscopic alterations included liver hypertrophy and necrosis, decreased hematopoiesis and lymphocyte depletion.

Carcinogenicity: Suspected of causing cancer. Repeated application of residual aromatic extracts to mouse skin resulted in an increased incidence of skin tumours. They have been identified as a carcinogen by IARC.

Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.

Reproductive Toxicity: Not expected to cause reproductive toxicity.

Other Comments: Diesel engine exhaust has been classified by the International Agency for Research on Cancer (IARC) and National Toxicology Programme (NTP) as a carcinogen.

11.2 Information on Hazardous Components

Naphthalene

Carcinogenicity: Naphthalene has been evaluated in two-year inhalation studies in both rats and mice. The US National Toxicology Programme (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory

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epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has been identified as a carcinogen by IARC and NTP.

SECTION12: ECOLOGICAL INFORMATION

12.1. Toxicity

Experimental studies of gas oils show that acute aquatic toxicity values are typically in the range 2-20 mg/L. These values are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon compositions. They should be regarded as toxic to aquatic organisms, with the potential to cause long-term adverse effects in the aquatic environment.

12.2. Persistence and degradability

Gas oils are complex combinations of individual hydrocarbon species. Based on the known or expected properties of individual constituents, category members are not predicted to be readily biodegradable. Some hydrocarbon constituents of gas oils are predicted to meet the criteria for persistence; on the other hand, microorganisms under aerobic conditions can easily degrade some components.

Persistence per IOPC Fund definition: Non-Persistent

12.3. Bioaccumulative potential

Gas oil components have measured or calculated Log Kow values in the range of 3.9 to 6, which indicates a high potential to bioaccumulate. Lower molecular weight compounds are readily metabolized and the actual bioaccumulation potential of higher molecular weight compounds is limited by the low water solubility and large molecular size.

12.4. Mobility in soil

Releases to water will result in a hydrocarbon film floating and spreading on the surface. For the lighter components, volatilisation is an important loss process and reduces the hazard to aquatic organisms. In air, the hydrocarbon vapours react readily with hydroxyl radicals with half-lives of less than one day. Photooxidation on the water surface is also a significant loss process particularly for polycyclic aromatic compounds. In water, the majority of components will be adsorbed on sediment. Adsorption is the most predominant physical process on release to soil. Adsorbed hydrocarbons will slowly degrade in both water and soil.

12.5. Results of PBT and vPvB assessment

Not a PBT or vPvB substance.

12.6. Other adverse effects

None anticipated

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SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

European Waste Code: 13 07 01* fuel oil and diesel

This material, if discarded as produced, would be considered as hazardous waste pursuant to Directive 2008/98/EC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies. This code has been assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste generators/producers are responsible for assessing the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code.

Disposal must be in accordance with Directive 2008/98/EC and other applicable national or regional provisions, and based upon material characteristics at time of disposal. For incineration of waste, follow Directive 2000/76/EC. For landfill of waste, follow Directive 1999/31/EC. Product is suitable for burning in an enclosed controlled burner for fuel value if >5000 BTU, or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Follow Directive 2000/76/EC.

Empty Containers: Container contents should be completely used and containers emptied prior to discard. Empty drums should be properly sealed and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with applicable regulations.

SECTION 14: TRANSPORT INFORMATION

- 14.1. UN number:** UN1202
- 14.2. UN proper shipping name:** DIESEL FUEL or GASOIL or HEATING OIL, LIGHT
- 14.3. Transport hazard class (es):** 3
- 14.4. Packing group:** III
- 14.5. Environmental hazards:** Marine pollutant - Environmentally Hazardous
- 14.6. Special precautions for user** **If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I.**
- 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
Not applicable

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SECTION 15: REGULATORY INFORMATION

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

EC 1272/2008 - Classification, labelling and packaging of substances and mixtures
EN166:2002 Eye Protection
EN 529:2005 Respiratory Protective devices
BS EN 374-1:2003 Protective gloves against chemicals and microorganisms
Workplace Exposure Limits, EH40/2005, Control of Substances Hazardous to Health
Directive 2008/98/EC (Waste Framework Directive)
Directive 2000/76/EC on incineration of waste
Directive 1999/31/EC on landfill of waste

Export Rating: NLR (No Licence Required)

15.2. Chemical safety assessment

A chemical safety assessment has been carried out for the substance/mixture.

SECTION 16: OTHER INFORMATION

List of Relevant Hazard Statements:

H226 - Flammable liquid and vapour
H302 - Harmful if swallowed
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
Repeated exposure may cause skin dryness or cracking
H332 - Harmful if inhaled
H351 - Suspected of causing cancer
H373 - May cause damage to organs through prolonged or repeated exposure
H410 - Very toxic to aquatic life with long lasting effects
H411 - Toxic to aquatic life with long lasting effects

Regulatory Basis of Classification

CLP Classification (EC No 1272/2008)	Regulatory Basis
H226 - Flammable liquids - Category 3	Based on test data
H304 -- Aspiration Hazard - Category 1	Based on component information.
H315 -- Skin corrosion/irritation - Category 2	Based on component information.
H332 -- Acute toxicity, Inhalation - Category 4	Based on component information.
H351 -- Carcinogenicity - Category 2	Based on component information.
H373 -- Specific target organ toxicity (repeated exposure) - Category 2	Based on component information.
H411 -- Hazardous to the aquatic environment, chronic toxicity - Category 2	Based on component information.

Guide to Abbreviations:

ACGIH = American Conference of Governmental Industrial Hygienists; ADR = Agreement on Dangerous Goods by Road; BMGV = Biological Monitoring Guidance Value; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA = [US]

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Environmental Protection Agency; Germany-TRGS = Technical Rules for Dangerous Substances; IARC = International Agency for Research on Cancer; ICAO/IATA = International Civil Aviation Organisation / International Air Transport Association; INSHT = National Institute for Health and Safety at Work; IMDG = International Maritime Dangerous Goods; Ireland-HSA = Ireland's National Health and Safety Authority; LEL = Lower Explosive Limit; MARPOL = Marine Pollution; N/A = Not Applicable; N/D = Not Determined; NTP = [US] National Toxicology Programme; PBT = Persistent, Bioaccumulative and Toxic; RID = Regulations Concerning the International Transport of Dangerous Goods by Rail; STEL = Short Term Exposure Limit; TLV = Threshold Limit Value; TRGS 903 = Technical rules for hazardous substances; TWA = Time Weighted Average; UEL = Upper Explosive Limit; UK-EH40 = United Kingdom EH40/2005 OEL; vPvB = very Persistent, very Bioaccumulative

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