

SAFETY DATA SHEET**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Product name Iloform PN 226
UFI: HXC0-H0Q6-U00V-ST17
Product code 450947-DE18
SDS no. 450947
Product type Liquid.

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

Identified uses
Use of lubricants in high energy open processes-Industrial Use of lubricants in high energy open processes-Professional

**Use of the substance/
mixture** Metalworking fluid - neat.
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

1.3 Details of the supplier of the safety data sheet

Supplier Castrol Industrial - divisie BP Europa SE - BP Belgium
Amocolaan 2
2440 Geel
BELGIUM

Telephone: +32 (0)800 40752
Telefax: +32 (0)800 40750

E-mail address MSDSadvice@bp.com

1.4 Emergency telephone number

**EMERGENCY
TELEPHONE NUMBER** Carechem: +44 (0) 1235 239 670 (24/7)
Belgium Poison Center Belgium: Poison center 070 245245

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture**

Product definition Mixture

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

act., H362
 Aquatic Acute 1, H400
 Aquatic Chronic 1, H410

See Section 16 for the full text of the H statements declared above.

See sections 11 and 12 for more detailed information on health effects and symptoms and environmental hazards.

2.2 Label elements

UFI: HXC0-H0Q6-U00V-ST17

Hazard pictograms

Signal word Warning

Hazard statements H362 - May cause harm to breast-fed children.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements

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SECTION 2: Hazards identification

Prevention	P201 - Obtain special instructions before use. P273 - Avoid release to the environment. P263 - Avoid contact during pregnancy and while nursing. P270 - Do not eat, drink or smoke when using this product.
Response	P391 - Collect spillage. P308 + P313 - IF exposed or concerned: Get medical attention.
Storage	Not applicable.
Disposal	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazardous ingredients	Alkanes, C14-17, chloro
Supplemental label elements	Repeated exposure may cause skin dryness or cracking.

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	Not applicable.
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Special packaging requirements

Containers to be fitted with child-resistant fastenings	Not applicable.
Tactile warning of danger	Not applicable.

2.3 Other hazards

Results of PBT and vPvB assessment	Product does not meet the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.
Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII	<input checked="" type="checkbox"/> This mixture contains substances that are assessed to be a PBT or a vPvB, refer to Section 3.2.
Other hazards which do not result in classification	Experimental data on one or more of the components has been used to determine all or part of the hazard classification of this product. Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Product definition Mixture

Highly refined mineral oil and additives

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
<input checked="" type="checkbox"/> Alkanes, C14-17, chloro	REACH #: 01-2119519269-33 EC: 287-477-0 CAS: 85535-85-9 Index: 602-095-00-X	≥25 - ≤50	Lact., H362 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=10) EUH066	[1] [3] [4]
Distillates (petroleum), hydrotreated light naphthenic	REACH #: 01-2119480375-34 EC: 265-156-6 CAS: 64742-53-6 Index: 649-466-00-2	≥10 - ≤25	Asp. Tox. 1, H304	[1] [2]
Oils, vegetable	EC: 273-313-5 CAS: 68956-68-3	≤10	Not classified.	[2]
Distillates (petroleum), hydrotreated heavy naphthenic	REACH #: 01-2119467170-45 EC: 265-155-0 CAS: 64742-52-5 Index: 649-465-00-7	≤10	Not classified.	[2]
Distillates (petroleum), solvent-dewaxed heavy paraffinic	REACH #: 01-2119471299-27 EC: 265-169-7 CAS: 64742-65-0 Index: 649-474-00-6	≤10	Asp. Tox. 1, H304	[1] [2]

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SECTION 3: Composition/information on ingredients

Distillates (petroleum), hydrotreated heavy paraffinic	REACH #: 01-2119484627-25 ≤10 EC: 265-157-1 CAS: 64742-54-7 Index: 649-467-00-8	Asp. Tox. 1, H304	[1] [2]
Phosphorodithioic acid, mixed O,O-bis (iso-bu and pentyl) esters, zinc salts	REACH #: 01-2119493628-22 <3 EC: 270-608-0 CAS: 68457-79-4	Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 2, H411	[1]

See Section 16 for the full text of the H statements declared above.

Type

- [1] Substance classified with a health or environmental hazard
 - [2] Substance with a workplace exposure limit
 - [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
 - [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
 - [5] Substance of equivalent concern
 - [6] Additional disclosure due to company policy
- Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.
Skin contact	Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation develops.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Get medical attention if symptoms occur.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Potential acute health effects

Inhalation	Vapour inhalation under ambient conditions is not normally a problem due to low vapour pressure.
Ingestion	No known significant effects or critical hazards.
Skin contact	Defatting to the skin. May cause skin dryness and irritation.
Eye contact	Not classified as an eye irritant. Based on data available for this or related materials.No known significant effects or critical hazards.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Inhalation	Overexposure to the inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract.
Ingestion	Ingestion of large quantities may cause nausea and diarrhoea.
Skin contact	Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.
Eye contact	Potential risk of transient stinging or redness if accidental eye contact occurs.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Treatment should in general be symptomatic and directed to relieving any effects.
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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	Use foam or all-purpose dry chemical to extinguish.
Unsuitable extinguishing media	Do not use water jet. The use of a water jet may cause the fire to spread by splashing the burning product.

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SECTION 5: Firefighting measures

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture

Swarf fires - Neat metal working oils may fume, thermally decompose or ignite if they come into contact with red hot swarf. To minimise the generation of red hot swarf ensure that a sufficient flow of oil is correctly directed to the cutting edge of the tool to flood it throughout cutting operations. As an additional precaution swarf should be regularly cleared from the immediate area to prevent the risk of fire. In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products

Combustion products may include the following:
carbon oxides (CO, CO₂) (carbon monoxide, carbon dioxide)

5.3 Advice for firefighters

Special precautions for fire-fighters

No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. This material is very toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Floors may be slippery; use care to avoid falling. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment.

For emergency responders

Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning up

Small spill

Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spill product. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 5 for firefighting measures.
See Section 8 for information on appropriate personal protective equipment.
See Section 12 for environmental precautions.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment. Avoid exposure - obtain special instructions before use. Avoid contact during pregnancy or while nursing. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid contact of spilled material and runoff with soil and surface waterways. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Empty containers retain product residue and can be hazardous. Concentrations of mist, fumes and vapours in enclosed spaces may result in the formation of explosive atmospheres. Excessive splashing, agitation or heating must be avoided. During metal

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SECTION 7: Handling and storage

working, solid particles from workpieces or tools will contaminate the fluid and may cause abrasions of the skin. Where such abrasions result in a penetration of the skin, first aid treatment should be applied as soon as reasonably possible. The presence of certain metals in the workpiece or tool, such as chromium, cobalt and nickel, can contaminate the metalworking fluid, as can bacteria, and as a result may induce allergic and other skin reactions, especially if personal hygiene is inadequate.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep away from heat and direct sunlight. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Store and use only in equipment/containers designed for use with this product. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Not suitable

Prolonged exposure to elevated temperature

7.3 Specific end use(s)

Recommendations

See section 1.2 and Exposure scenarios in annex, if applicable.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Product/ingredient name	Exposure limit values
Distillates (petroleum), hydrotreated light naphthenic	Limit values (Belgium). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 10/2002 Form: Mist STEL: 10 mg/m ³ 15 minutes. Issued/Revised: 10/2002 Form: Mist
Oils, vegetable	Limit values (Belgium). TWA: 10 mg/m ³ 8 hours. Issued/Revised: 10/2002 Form: Mist
Distillates (petroleum), hydrotreated heavy naphthenic	Limit values (Belgium). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 10/2002 Form: Mist STEL: 10 mg/m ³ 15 minutes. Issued/Revised: 10/2002 Form: Mist
Distillates (petroleum), solvent-dewaxed heavy paraffinic	Limit values (Belgium). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 10/2002 Form: Mist STEL: 10 mg/m ³ 15 minutes. Issued/Revised: 10/2002 Form: Mist
Distillates (petroleum), hydrotreated heavy paraffinic	Limit values (Belgium). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 10/2002 Form: Mist STEL: 10 mg/m ³ 15 minutes. Issued/Revised: 10/2002 Form: Mist

Whilst specific OELs for certain components may be shown in this section, other components may be present in any mist, vapour or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived No Effect Level

No DNELs/DMELs available.

Predicted No Effect Concentration

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No PNECs available

8.2 Exposure controls

Appropriate engineering controls

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards. The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. For protection against metal working fluids, respiratory protection that is classified as “resistant to oil” (class R) or oil proof (class P) should be selected where appropriate. Depending on the level of airborne contaminants, an air-purifying, half-mask respirator (with HEPA filter) including disposable (P- or R-series) (for oil mists less than 50mg/m3), or any powered, air-purifying respirator equipped with hood or helmet and HEPA filter (for oil mists less than 125 mg/m3). Where organic vapours are a potential hazard during metalworking operations, a combination particulate and organic vapour filter may be necessary. The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Eye/face protection

Safety glasses with side shields.

Skin protection

Hand protection

General Information:

Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. The correct choice of protective gloves depends upon the chemicals being handled, and the conditions of work and use. Most gloves provide protection for only a limited time before they must be discarded and replaced (even the best chemically resistant gloves will break down after repeated chemical exposures).

Gloves should be chosen in consultation with the supplier / manufacturer and taking account of a full assessment of the working conditions.

Recommended: Nitrile gloves.

Breakthrough time:

Breakthrough time data are generated by glove manufacturers under laboratory test conditions and represent how long a glove can be expected to provide effective permeation resistance. It is important when following breakthrough time recommendations that actual workplace conditions are taken into account. Always consult with your glove supplier for up-to-date technical information on breakthrough times for the recommended glove type. Our recommendations on the selection of gloves are as follows:

Continuous contact:

Gloves with a minimum breakthrough time of 240 minutes, or >480 minutes if suitable gloves can be obtained.

If suitable gloves are not available to offer that level of protection, gloves with shorter breakthrough times may be acceptable as long as appropriate glove maintenance and replacement regimes are determined and adhered to.

Short-term / splash protection:

Recommended breakthrough times as above.

It is recognised that for short-term, transient exposures, gloves with shorter breakthrough times may commonly be used. Therefore, appropriate maintenance and replacement regimes must be determined and rigorously followed.

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SECTION 8: Exposure controls/personal protection

Glove Thickness:

For general applications, we recommend gloves with a thickness typically greater than 0.35 mm.

It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.

Skin and body

Use of protective clothing is good industrial practice.

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

Refer to standards:

- Respiratory protection: EN 529
- Gloves: EN 420, EN 374
- Eye protection: EN 166
- Filtering half-mask: EN 149
- Filtering half-mask with valve: EN 405
- Half-mask: EN 140 plus filter
- Full-face mask: EN 136 plus filter
- Particulate filters: EN 143
- Gas/combined filters: EN 14387

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid.
Colour	Brown.
Odour	Not available.
Odour threshold	Not available.
pH	Not applicable.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Closed cup: >140°C (>284°F) [Estimated. Based on Lubricants - Base Oils]
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.

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SECTION 9: Physical and chemical properties

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Alkanes, C14-17, chloro	0					
Distillates (petroleum), hydrotreated heavy naphthenic	<0.08	<0.011	ASTM D 5191			
Distillates (petroleum), solvent-dewaxed heavy paraffinic	<0.08	<0.011	ASTM D 5191			
Distillates (petroleum), hydrotreated heavy paraffinic	<0.08	<0.011	ASTM D 5191			
Phosphorodithioic acid, mixed O,O-bis(iso-butyl and pentyl) esters, zinc salts	0	0	EU A.4	0	0	EU A.4

Vapour density Not available.
Relative density Not available.
Density >1000 kg/m³ (>1 g/cm³) at 15°C
Solubility(ies) insoluble in water.
Partition coefficient: n-octanol/water Not applicable.
Auto-ignition temperature

Ingredient name	°C	°F	Method
Phenol	444.85	832.7	

Decomposition temperature Not available.
Viscosity Kinematic: 68 mm²/s (68 cSt) at 40°C
Explosive properties Not available.
Oxidising properties Not available.

Particle characteristics
Median particle size Not applicable.
9.2 Other information
 No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.

10.2 Chemical stability The product is stable.

10.3 Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.

10.4 Conditions to avoid Avoid all possible sources of ignition (spark or flame).

10.5 Incompatible materials Reactive or incompatible with the following materials: oxidising materials.

10.6 Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity estimates

SECTION 11: Toxicological information

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Phosphorodithioic acid, mixed O,O-bis(iso-butyl) esters, zinc salts	2500	N/A	N/A	N/A	N/A

Information on likely routes of exposure Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Inhalation Vapour inhalation under ambient conditions is not normally a problem due to low vapour pressure.

Ingestion No known significant effects or critical hazards.

Skin contact Defatting to the skin. May cause skin dryness and irritation.

Eye contact Not classified as an eye irritant. Based on data available for this or related materials. No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation No specific data.

Ingestion No specific data.

Skin contact Adverse symptoms may include the following:
irritation
dryness
cracking

Eye contact No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Inhalation Overexposure to the inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract.

Ingestion Ingestion of large quantities may cause nausea and diarrhoea.

Skin contact Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.

Eye contact Potential risk of transient stinging or redness if accidental eye contact occurs.

Potential chronic health effects

General Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Developmental effects May cause harm to breast-fed children.

Fertility effects No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Environmental hazards Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Not expected to be rapidly degradable.

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) Not available.

Mobility Liquid. insoluble in water.

12.5 Results of PBT and vPvB assessment

Product does not meet the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.

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SECTION 12: Ecological information

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
Alkanes, C14-17, chloro	SVHC (Candidate)	Specified	Specified	Specified	SVHC (Candidate)	Specified	Specified
Distillates (petroleum), hydrotreated light naphthenic	No	N/A	N/A	No	N/A	N/A	N/A
Distillates (petroleum), solvent-dewaxed heavy paraffinic	No	N/A	N/A	No	N/A	N/A	N/A
Distillates (petroleum), hydrotreated heavy paraffinic	No	N/A	N/A	No	N/A	N/A	N/A
Phosphorodithioic acid, mixed O,O-bis(iso-bu and pentyl) esters, zinc salts	No	N/A	N/A	No	N/A	N/A	N/A

12.6 Other adverse effects No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.

Hazardous waste Yes.

European waste catalogue (EWC)

Waste code	Waste designation
12 01 06*	mineral-based machining oils containing halogens (except emulsions and solutions)

However, deviation from the intended use and/or the presence of any potential contaminants may require an alternative waste disposal code to be assigned by the end user.

Packaging

Methods of disposal Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.

Waste code	European waste catalogue (EWC)
15 01 10*	packaging containing residues of or contaminated by hazardous substances

Special precautions This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Empty containers represent a fire hazard as they may contain flammable product residues and vapour. Never weld, solder or braze empty containers. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

References Commission 2014/955/EU
Directive 2008/98/EC

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN3082	UN3082	UN3082	UN3082
14.2 UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Alkanes, C14-17, chloro)	Environmentally hazardous substance, liquid, n.o.s. (Alkanes, C14-17, chloro)	Environmentally hazardous substance, liquid, n.o.s.. Marine pollutant (Alkanes, C14-17, chloro)	Environmentally hazardous substance, liquid, n.o.s. (Alkanes, C14-17, chloro)
14.3 Transport hazard class(es)	9  	9  	9  	9  
14.4 Packing group	III	III	III	III

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SECTION 14: Transport information

14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes.
Additional information	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. Hazard identification number 90 Tunnel code -	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. Emergency schedules F-A, S-F	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.

14.6 Special precautions for user Not available.

ADR/RID Classification code: M6

ADN Classification code: M6

14.7 Transport in bulk according to IMO instruments Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

PBT

Ingredient name	Status	Reference number
alkanes, C14-17, chloro	Candidate	D(2021)4569-DC

vPvB

Ingredient name	Status	Reference number
alkanes, C14-17, chloro	Candidate	D(2021)4569-DC

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles Not applicable.

Other regulations

REACH Status The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.

United States inventory (TSCA 8b) At least one component is not listed.

Australia inventory (AIIIC) All components are listed or exempted.

Canada inventory All components are listed or exempted.

China inventory (IECSC) All components are listed or exempted.

Japan inventory (CSCL) All components are listed or exempted.

Korea inventory (KECI) All components are listed or exempted.

Philippines inventory (PICCS) All components are listed or exempted.

SECTION 15: Regulatory information

Taiwan Chemical Substances Inventory (TCSI) All components are listed or exempted.

Ozone depleting substances (1005/2009/EU)
Not listed.

Prior Informed Consent (PIC) (649/2012/EU)
Not listed.

Persistent Organic Pollutants
Not listed.

EU - Water framework directive - Priority substances
None of the components are listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
E1

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for one or more of the substances within this mixture. A Chemical Safety Assessment has not been carried out for the mixture itself.

SECTION 16: Other information

Abbreviations and acronyms

- ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
- ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- CAS = Chemical Abstracts Service
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- CSA = Chemical Safety Assessment
- CSR = Chemical Safety Report
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EINECS = European Inventory of Existing Commercial chemical Substances
- ES = Exposure Scenario
- EUH statement = CLP-specific Hazard statement
- EWC = European Waste Catalogue
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- OECD = Organisation for Economic Co-operation and Development
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]
- RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
- RRN = REACH Registration Number
- SADT = Self-Accelerating Decomposition Temperature
- SVHC = Substances of Very High Concern
- STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
- STOT-SE = Specific Target Organ Toxicity - Single Exposure
- TWA = Time weighted average
- UN = United Nations
- UVCB = Complex hydrocarbon substance
- VOC = Volatile Organic Compound
- vPvB = Very Persistent and Very Bioaccumulative
- Varies = may contain one or more of the following 64741-88-4 / RRN 01-2119488706-23, 64741-89-5 / RRN 01-2119487067-30, 64741-95-3 / RRN 01-2119487081-40, 64741-96-4/ RRN 01-2119483621-38, 64742-01-4 / RRN 01-2119488707-21, 64742-44-5 / RRN

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SECTION 16: Other information

01-2119985177-24, 64742-45-6, 64742-52-5 / RRN 01-2119467170-45, 64742-53-6 / RRN 01-2119480375-34, 64742-54-7 / RRN 01-2119484627-25, 64742-55-8 / RRN 01-2119487077-29, 64742-56-9 / RRN 01-2119480132-48, 64742-57-0 / RRN 01-2119489287-22, 64742-58-1, 64742-62-7 / RRN 01-2119480472-38, 64742-63-8, 64742-65-0 / RRN 01-2119471299-27, 64742-70-7 / RRN 01-2119487080-42, 72623-85-9 / RRN 01-2119555262-43, 72623-86-0 / RRN 01-2119474878-16, 72623-87-1 / RRN 01-2119474889-13

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Lact., H362 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	Calculation method Calculation method Calculation method

Full text of abbreviated H statements

H304 May be fatal if swallowed and enters airways.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H362 May cause harm to breast-fed children.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.
 H411 Toxic to aquatic life with long lasting effects.
 EUH066 Repeated exposure may cause skin dryness or cracking.

Full text of classifications [CLP/GHS]

Aquatic Acute 1 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
 Aquatic Chronic 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
 Aquatic Chronic 2 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
 Asp. Tox. 1 ASPIRATION HAZARD - Category 1
 Eye Dam. 1 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
 Lact. REPRODUCTIVE TOXICITY - Effects on or via lactation
 Skin Irrit. 2 SKIN CORROSION/IRRITATION - Category 2

History

Date of issue/ Date of revision 02/11/2021.
Date of previous issue 24/05/2021.
Prepared by Product Stewardship

Indicates information that has changed from previously issued version.

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

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Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mixture
Code	450947-DE18
Product name	Iloform PN 226

Section 1: Title

Short title of the exposure scenario	Use of lubricants in high energy open processes - Industrial
List of use descriptors	Identified use name: Use of lubricants in high energy open processes-Industrial Process Category: PROC01, PROC02, PROC08b, PROC17 Sector of end use: SU03 Subsequent service life relevant for that use: No. Environmental Release Category: ERC04 Specific Environmental Release Category: ATIEL-ATC SPERC 4.Fi.v1

Processes and activities covered by the exposure scenario	Covers use of lubricants in high energy open processes, e.g. In high speed machinery such as metal rolling/forming or metal working fluids for machining and grinding. Includes associated product storage, material transfers, sampling and maintenance activities.
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Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state: Liquid, vapour pressure < 0.5 kPa

Concentration of substance in product: Covers use of substance/product up to 100 % (unless stated differently)

Frequency and duration of use: Covers daily exposures up to 8 hours

Other conditions affecting workers exposure: Assumes use at not more than 20°C above ambient temperature. Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General measures applicable to all activities:

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product also via contamination on hands.

Filling of equipment from drums or containers:
No specific measures identified.

Metal machining operations:
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Operation and lubrication of high energy open equipment:
Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Automated metal rolling/forming Use in contained systems Operation is carried out at elevated temperature (> 20°C above ambient temperature):
No other specific measures identified.

Semi-automated metal rolling/forming Open systems Operation is carried out at elevated temperature (> 20°C above ambient temperature):
Provide extract ventilation to points where emissions occur.

Equipment cleaning and maintenance:
Drain down system prior to equipment break-in or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Storage:
Store substance within a closed system.

Section 2.2: Control of environmental exposure

Amounts used:

EU tonnage of risk determining substance per year: 2.05E+02 Tonnes/year

Frequency and duration of use:

Emission days 300

Environment factors not influenced by risk management:

Local freshwater dilution factor 10

Local marine water dilution factor 100

Other conditions affecting environmental exposure: Water-based (oil in water emulsion) or straight oil (contains no water) process

Release fraction to air (after typical onsite RMMs) 1.00E-04

Release fraction to soil from process (after typical onsite RMMs) 0

Release fraction to wastewater from process (after typical onsite RMMs and before sewage treatment plan) 5.00E-10

Technical conditions and measures at process level (source) to prevent release: Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil: Prevent discharge of undissolved substance to or recover from onsite wastewater. User sites are assumed to be provided with oil/water separators and waste water to be discharged via a sewage treatment plant

Organisational measures to prevent/limit release from site: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.

Conditions and measures related to sewage treatment plant:

Estimated substance removal from wastewater via on-site sewage treatment 69

Assumed domestic sewage treatment plant flow rate (m³/d) 2.00E+3

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal as product: 2371

Conditions and measures related to external treatment of waste for disposal: External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste: External recovery and recycling of waste should comply with applicable local and/or national regulations.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): Used ECETOC TRA model (May 2010 release).

Exposure estimation and reference to its source - Workers

Exposure assessment (human): The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4: Guidance to check compliance with the exposure scenario

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see www.ATIEL.org/REACH_GES

Health

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	Mixture
Code	450947-DE18
Product name	Iloform PN 226

Section 1: Title

Short title of the exposure scenario	Use of lubricants in high energy open processes - Professional
List of use descriptors	Identified use name: Use of lubricants in high energy open processes-Professional Process Category: PROC01, PROC02, PROC08a, PROC17 Sector of end use: SU22 Subsequent service life relevant for that use: No. Environmental Release Category: ERC08a Specific Environmental Release Category: ATIEL-ATC SpERC 8.7c.v1

Processes and activities covered by the exposure scenario	Covers use of lubricants in high energy open processes, e.g. In high speed machinery such as metal rolling/forming or metal working fluids for machining and grinding. Includes associated product storage, material transfers, sampling and maintenance activities.
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Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state: Liquid, vapour pressure < 0.5 kPa

Concentration of substance in product: Covers use of substance/product up to 100 % (unless stated differently)

Frequency and duration of use: Covers daily exposures up to 8 hours

Other conditions affecting workers exposure: Assumes use at not more than 20°C above ambient temperature. Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General measures applicable to all activities:

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection. Avoid direct eye contact with product also via contamination on hands.

Filling of equipment from drums or containers:

Avoid carrying out activities involving exposure for more than 1 hour per day.

Metal machining operations:

Provide extract ventilation to points where emissions occur.

Operation and lubrication of high energy open equipment:

Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours per day. Wear a respirator conforming to EN140 with type A filter or better. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training.

Equipment cleaning and maintenance:

Drain down system prior to equipment break-in or maintenance. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Avoid carrying out activities involving exposure for more than 4 hours per day. Wear a respirator conforming to EN140 with type A filter or better. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Storage:

Store substance within a closed system.

Section 2.2: Control of environmental exposure

Amounts used:

EU tonnage of risk determining substance per year: 2.05E+02 Tonnes/year

Frequency and duration of use:

Emission days 365

Environment factors not influenced by risk management:

Local freshwater dilution factor 10

Local marine water dilution factor 100

Other conditions affecting environmental exposure:

Negligible wastewater emissions as process operates without water contact.

Release fraction to air (after typical onsite RMMs) 1.00E-04

Release fraction to soil from process (after typical onsite RMMs) 1E-03

Release fraction to wastewater from process (after typical onsite RMMs and before sewage treatment plant) 2.50E-02

Technical conditions and measures at process level (source) to prevent release:

Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

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

Organisational measures to prevent/limit release from site:

Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.

Conditions and measures related to sewage treatment plant:

Estimated substance removal from wastewater via on-site sewage treatment 69

Assumed domestic sewage treatment plant flow rate (m³/d) 2.00E+3

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal as product: 20

Conditions and measures related to external treatment of waste for disposal:

External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste:

External recovery and recycling of waste should comply with applicable local and/or national regulations.

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment): Used ECETOC TRA model (May 2010 release).

Exposure estimation and reference to its source - Workers

Exposure assessment (human): The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4: Guidance to check compliance with the exposure scenario

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see www.ATIEL.org/REACH_GES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.