

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) and Regulation (EU) No 2015/830

INEOS Phenol

Acetone

Revision date: 1/12/2015
Version: 12

Language: en-GB,IE

Date of print: 6/1/2016
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: Acetone
REACH registration No.: 01-2119471330-49-XXXX
Location Germany: 01-2119471330-49-0000
Location Belgium: 01-2119471330-49-0005
Location Mobile: 01-2119471330-49-0003

CAS-Number: 67-64-1
EC-number: 200-662-2
EU index number: 606-001-00-8

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

General use: Besides its application as a solvent Acetone is an important intermediate product of the chemical industry e.g. for manufacturing Methylmethacrylate, Methyl Isobutyl Ketone and Bisphenol A.

Identified uses:

Industrial use:

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* Examples for processing:
use as an intermediate,
use as a monomer etc.,
use as a solvent,
use for the manufacturing of resins

1.3 Details of the supplier of the safety data sheet

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1.4 Emergency telephone number

Telephone Germany: +49 (0)2043 / 9 58-233
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EC regulation 1272/2008 (CLP)

Flam. Liq. 2; H225 Highly flammable liquid and vapour.
Eye Irrit. 2; H319 Causes serious eye irritation.
STOT SE 3; H336 May cause drowsiness or dizziness.
(EUH066) Repeated exposure may cause skin dryness or cracking.

2.2 Label elements

Labelling (CLP)



Signal word:

Danger

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Hazard statements:	H225	Highly flammable liquid and vapour.
	H319	Causes serious eye irritation.
	H336	May cause drowsiness or dizziness.
	EUH066	Repeated exposure may cause skin dryness or cracking.
Precautionary statements:	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	P243	Take precautionary measures against static discharge.
	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P403+P233	Store in a well-ventilated place. Keep container tightly closed.
	P405	Store locked up.
	P501	Dispose of contents/container to hazardous or special waste collection point.

2.3 Other hazards

Vapours are moderately irritating to the mucous membranes.
Higher doses may have a narcotic effect. Danger of metabolic acidosis.
After ingestion: Gastric and intestinal problems.
Other symptoms: Headache, dizziness, nausea, unconsciousness.

SECTION 3: Composition / information on ingredients

3.1 Substances

Chemical characterisation:

C₃H₆O = H₃C-CO-CH₃
Acetone, Dimethyl ketone, 2-Propanone, Methyl ketone

CAS-Number: 67-64-1
EC-number: 200-662-2
EU index number: 606-001-00-8
RTECS-Number: AL3150000
Customs tariff number: 2914 11 00

SECTION 4: First aid measures

4.1 Description of first aid measures

General information:	Move victim to fresh air, put at rest and loosen restrictive clothing. Do not allow victim to become chilled. Keep victim warm. If victim is at risk of losing consciousness, position and transport on their side. Call a physician immediately.
In case of inhalation:	Move victim to fresh air, put at rest and loosen restrictive clothing. If breathing becomes irregular or ceases, apply mouth-to-mouth resuscitation or artificial respiration immediately, where required supply oxygen. Immediately get medical attention.
Following skin contact:	Immediately remove any wetted clothing, shoes or stockings. After contact with skin, wash immediately with soap and plenty of water. Then cream your skin. In case of skin irritation, consult a physician.
After eye contact:	Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently seek the immediate attention of an ophthalmologist.

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After swallowing: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.
Give activated carbon, in order to reduce the resorption in the gastro-enteric tract.

4.2 Most important symptoms and effects, both acute and delayed

Burning eyes and skin. fatigue, nausea, Headache, dizziness, unconsciousness.
In case of inhalation:
For the development of any overt signs of toxicity in humans, accidental exposures to extremely large amounts of acetone by inhalation of vapour or ingestion of liquid are necessary (e. g. several thousand ppm of acetone vapour).
In case of ingestion: Gastric and intestinal problems.
After contact with skin:
Irritant. Repeated exposure may cause skin dryness or cracking, due to defatting properties.
No indication for sensitising properties in humans.
After eye contact: Causes serious eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Combat acidosis. Monitor alkali reserves. Monitor breathing.
If breathing becomes irregular or ceases, apply mouth-to-mouth resuscitation or artificial respiration immediately, where required supply oxygen.
Attention: several hours latency period. In severe cases, pneumonia or a pulmonary edema may develop.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Extinguishing powder, alcohol resistant foam, carbon dioxide, water fog

Extinguishing media which must not be used for safety reasons:

Full water jet

5.2 Special hazards arising from the substance or mixture

Highly flammable liquid and vapour.
Explosive mixtures with air may even form at room temperature. Beware of reignition.
In case of fire may be liberated: Carbon monoxide and carbon dioxide.

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information: Hazchem-Code: •2YE

Do not expose to high temperature. Danger of bursting and explosion. Use fine water spray to cool endangered containers.

Move undamaged containers from immediate hazard area if it can be done safely.

Do not allow fire water to penetrate into surface or ground water.

Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

Fire class: B

Mixtures with 4% acetone mixed with 96% water still have a flash point of 54 °C.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Eliminate all ignition sources if safe to do so. Remove persons not involved upwind.
Wear a self-contained breathing apparatus and chemical protective clothing.
Solvent-resistant protective clothing recommended.

6.2 Environmental precautions

Plug leak if safely possible.
Do not allow to enter drains, surface waters, basements or pits.
When released into the environment, alert police and fire brigade.
Seal all low level rooms. Danger of explosion!

6.3 Methods and material for containment and cleaning up

In case of spills of large quantities: Dam spills and pump to remove. Explosion protection required.

Absorb leftover product with non-flammable liquid-binding material (e.g. earth, sand, vermiculite or ground sand stone) and place in closed containers for disposal.

Flowing water: Dilution occurs quickly. In case of large spills/leaks inform appropriate local, state, and federal spill reporting authorities.

Standing water: Seal off. Remove all sources of ignition.

Additional information: Vapours spread at floor level. Cover drainage holes and evacuate basement. Dilute with plenty of water. Use only explosion-protected equipment/instruments.

Liquid: Very highly flammable. Liquid evaporates very quickly.

Vapours: Very highly flammable.

Vapours form potentially explosive mixtures with air. Heavier than air, they proceed at floor level and may backflash over great distances when ignited. Ignition by hot surfaces, sparks and open flames.

Solubility in water: complete

Mixtures with 4% acetone mixed with 96% water still have a flash point of 54 °C. In case of important spills, risk of ignition of the acetone-water mixture. Potentially explosive mixtures with air may form above water surface.

6.4 Reference to other sections

Refer additionally to section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed.

Provide room air exhaust at ground level. Concentrated vapours are heavier than air. Avoid the formation of aerosol. Do not breathe vapours. Avoid contact with skin and eyes. Wear protective equipment.

Use only explosion-protected equipment/instruments. Do not use air pressure.

Precautions against fire and explosion:

Exposure to temperatures exceeding 50 °C will increase pressure: resulting in danger of bursting or explosion.

Keep away from sources of ignition. - No smoking.

Take precautionary measures against static discharges. Beware of reignition.

Potentially explosive mixture may form within partially empty containers.

Emergency cooling must be provided for in case of a fire in the vicinity.

Do not weld.

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7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Keep container dry. Keep container tightly closed in a cool, well-ventilated place. Protect from direct sunlight.

Steel, stainless steel, and aluminium are stable container materials. Copper may be attacked.

Unsuitable container/equipment material: May attack plastics.

Make sure spills can be contained, e.g. in sump pallets or kerbed areas.

Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.

Hints on joint storage: Do not store together with combustible or self-igniting materials or any highly flammable solids.

Peroxide may form when product is exposed to light and air.

Further details: Potentially explosive mixture may form within partially empty containers.

For outdoor storage: Use only equipment approved for use in 1 zone.

For indoor storage: Use only equipment approved for use in 2 zone.

Storage class: 3 = Flammable liquids

7.3 Specific end use(s)

solvent

SECTION 8: Exposure controls/personal protection

All exposure relevant information (human health and environment) is summarised in annexes to this safety data sheet.

8.1 Control parameters

Occupational exposure limit values:

Type	Limit value
Europe: IOELV: TWA	1210 mg/m ³ ; 500 ppm
Great Britain: WEL-STEL	3620 mg/m ³ ; 1500 ppm
Great Britain: WEL-TWA	1210 mg/m ³ ; 500 ppm
Ireland: 8 hours	1210 mg/m ³ ; 500 ppm IOELV

DNEL/DMEL: DNEL Long-term, workers, dermal: 186 mg/kg bw/d.
DNEL Short-term, workers, inhalative: 2,420 mg/m³
DNEL Long-term, workers, inhalative: 1,210 mg/m³
DNEL Long-term, consumers, oral: 62 mg/kg bw/d.
DNEL Long-term, consumers, dermal: 62 mg/kg bw/d.
DNEL Long-term, consumers, inhalative: 200 mg/m³

PNEC: PNEC water (freshwater): 10.6 mg/L.
PNEC water (marine water): 1.06 mg/L.
PNEC water (intermittent release): 21 mg/L.
PNEC sediment (freshwater): 30.4 mg/kg dwt.
PNEC sediment (marine water): 3.04 mg/kg dwt.
PNEC soil: 33.3 mg/kg dwt.
PNEC sewage treatment plant: 100 mg/L.

8.2 Exposure controls

Explosion protection required. Provide good ventilation and/or an exhaust system in the work area.

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Personal protection equipment

Occupational exposure controls

All information for relevant exposure scenarios including operational conditions and risk management measures are listed in 'Annex II: worker exposure and risk assessment'.

Respiratory protection: Use filter type AX (= against vapours of low boiling organic substances) according to EN 14387.

Have a breathing apparatus that is not dependent on the circulating air ready for emergencies.

Hand protection: Protective gloves according to EN 374.

Glove material: Butyl caoutchouc (butyl rubber) - Layer thickness \geq 0.5 mm.

Breakthrough time: $>$ 480 min.

Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection: Tightly sealed goggles according to EN 166.

Body protection: Use solvent-resistant protective clothing.

Recommendation: Flame-retardant protective clothing, antistatic. safety shoes according to EN 345-347.

General protection and hygiene measures:

Keep away from heat sources, sparks and open flames. Take precautionary measures against static discharges.

Avoid contact with skin and eyes.

When using do not eat, drink or smoke.

Wash hands before breaks and after work.

Have eye wash bottle or eye rinse ready at work place.

Alternatives to the personal protective measures as mentioned can only be determined in agreement with a responsible safety expert.

Consumer exposure controls

All information for relevant exposure scenarios including operational conditions and risk management measures are listed in 'Annex II: consumer exposure and risk assessment'.

Environmental exposure controls

All information for relevant exposure scenarios including operational conditions and risk management measures are listed in 'Annex III: Environmental Exposure and Risk Assessment and Annex IV: Environmental Exposure Calculation Tool'.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Form: liquid Colour: colourless, clear
Odour:	sweet, aromatic
Odour threshold:	47.5 mg/m ³
pH value:	at 10 g/L: neutral; 50% in H ₂ O: 5-6
Melting point/freezing point:	-94.7 °C
Initial boiling point and boiling range:	56.05 °C
Flash point/flash point range:	-17 °C (c.c.)
Evaporation rate:	no data available
Flammability:	Highly flammable liquid and vapour.
Explosion limits:	LEL (Lower Explosion Limit): 2.50 Vol-% UEL (Upper Explosive Limit): 14.30 Vol-%

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Vapour pressure:	at 20 °C: 240 hPa at 50 °C: 800 hPa
Vapour density:	2.1
Density:	at 20 °C: 0.79 g/mL
Solubility:	at 20 °C: in organic solvents 100 %
Water solubility:	at 20 °C: multimiscible
Partition coefficient: n-octanol/water:	-0.24 log P(o/w) Bio-accumulation is not to be expected (log P(o/w) <1).
Auto-ignition temperature:	465 °C (Inflammation group G1)
Thermal decomposition:	none
Viscosity, dynamic:	at 20 °C: 0.32 mPa*s
Explosive properties:	Explosion category 1; Explosion group II A
Oxidizing characteristics:	Highly flammable liquid and vapour.

9.2 Other information

Ignition temperature:	465 °C (Inflammation group G1)
Refraction index:	at 20 °C: 1.358 - 1.359
Additional information:	Molar mass: 58.09 g/mol Dissociation constant: pKa = 24.2 at 25°C Evaporation rate: 2.0 (ether = 1) Evaporation rate: 5.6 (n-BuAc = 1) Saturation concentration at 20 °C: 550 g/m ³

SECTION 10: Stability and reactivity

10.1 Reactivity

Acetone reacts in presence of bases.
Vapours form potentially explosive mixtures with air. Heavier than air, they proceed at floor level and may backflash over great distances when ignited. May become electrostatically charged.

10.2 Chemical stability

Product is stable under normal storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions known.

10.4 Conditions to avoid

Highly flammable. Concentrated vapours are heavier than air.
Take precautionary measures against static discharges.
Forms explosive mixtures with air, also in empty, uncleaned containers.
May produce, when being mixed with chloridized hydrocarbons and exposed to light, strongly irritating chloric acetone.

10.5 Incompatible materials

Attacks many plastics and rubbers. On contact with barium hydroxide, sodium hydroxide and many other alkaline materials condensation may occur.
Avoid contact with strong oxidizing agents, alkalis and amines.

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10.6 Hazardous decomposition products

In case of fire may be liberated: Carbon monoxide and carbon dioxide.

Thermal decomposition: none

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity: LD50 Rat, oral: 5800 mg/kg bw (OECD 401)
LD50 Rat, dermal: > 15800 mg/kg bw
LC50 Rat, inhalative: 76 mg/L/4h

Toxicological effects: Acute toxicity (oral): Based on available data, the classification criteria are not met.
Acute toxicity (dermal): Based on available data, the classification criteria are not met.
Acute toxicity (inhalative): Based on available data, the classification criteria are not met.
Skin corrosion/irritation: Based on available data, the classification criteria are not met.
Specific symptoms in animal studies (guinea pig): Does not cause irritation.
Eye damage/irritation: Eye Irrit. 2; H319 = Causes serious eye irritation.
Specific symptoms in animal studies (Rabbit): irritant (OECD 405)
Sensitisation to the respiratory tract: Based on available data, the classification criteria are not met.
Skin sensitisation: Based on available data, the classification criteria are not met.
Sensitisation: Specific symptoms in animal studies (guinea pig): not sensitising (OECD 406)
Germ cell mutagenicity/Genotoxicity: Based on available data, the classification criteria are not met.
not mutagenic in bacterial mutagenicity (OECD 471)
Chromosomal aberrations, in-vitro (OECD 473): negative
Gene-mutations mammalian cells, in-vitro (OECD 476): negative
Micronucleus test in-vivo Mouse/hamster (non-Guideline): negative
Carcinogenicity: Based on available data, the classification criteria are not met.
Not carcinogen at long term exposure (Mouse, dermal).
Reproductive toxicity: Based on available data, the classification criteria are not met.
Effects on fertility: No impairment of reproductive performance in animal experiments.
developmental toxicity: None developmental toxicity (inhalation at Rat, Mouse, OECD 414).
Effects on or via lactation: Lack of data.
Specific target organ toxicity (single exposure): STOT SE 3; H336 = May cause drowsiness or dizziness. May cause drowsiness or dizziness.
Specific target organ toxicity (repeated exposure): Based on available data, the classification criteria are not met.
NOAEL Rat, oral: 900 mg/kg/90d bw/d
NOAEC Rat, inhalative: 22500 mg/m³/8w
Aspiration hazard: Based on available data, the classification criteria are not met.

Other information: Short term effect: 10000 ppm were well-tolerated.
No symptoms did appear after 30 to 60 minutes.

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Symptoms

Burning eyes and skin. fatigue, nausea, Headache, dizziness, unconsciousness.
In case of inhalation:
For the development of any overt signs of toxicity in humans, accidental exposures to extremely large amounts of acetone by inhalation of vapour or ingestion of liquid are necessary (e. g. several thousand ppm of acetone vapour).
In case of ingestion: Gastric and intestinal problems.
After contact with skin:
Irritant. Repeated exposure may cause skin dryness or cracking, due to defatting properties.
No indication for sensitising properties in humans.
After eye contact: Causes serious eye irritation.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: Acute effects:
Fish toxicity:
- freshwater species: 96h LC50 (*Oncorhynchus mykiss*): 5,540 mg/L
- marine species: 96h LC50 (*Alburnus alburnus* (*alburnus*)): 11,000 mg/L
Invertebrate toxicity:
- freshwater species: 48h EC50 (*Daphnia pulex* (water flea)): 8,800 mg/L
- marine species: 24h EC50 (*Artemisia salina*): 2,100 mg/L
Algae toxicity:
- freshwater species: 8h NOEC (*Microcystis aeruginosa*): 530 mg/L/8 d.
- marine species: 96h NOEC (*Prorocentrum minimum*): 430 mg/L
Bacterial toxicity:
EC 12: (30 min; activated sludge; OECD 209): 1,000 mg/L
Long-term effects:
Long-term toxicity to aquatic invertebrates:
28-days NOEC (*Daphnia pulex* (water flea); reproduction): 2,212 mg/L
No information on long-term effects of fish and algae available.
Long-term effects on aquatic organisms are not relevant due to the rapid elimination in water.

12.2. Persistence and degradability

Further details: Abiotic degradation:
DT50, 19 - 114 d (Air, Indirect photodegradation by reaction with OH radicals.)
Abiotic degradation: none (Water, hydrolysis)
Biodegradation: 91 %/28 d (OECD 301B).
ThOD 84 %/5 d. (BOD5, APHA 219).
COD: 2.21 g O₂/g
Product is readily biodegradable.

Effects in sewage plants: In activated sludge: 100 %/ 4 d (anaerobic conditions; Warburg Respirometer)

12.3 Bioaccumulative potential

Bioconcentration factor (BCF):
3 (calculated, BCFWIN v2.17)

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12.4 Mobility in soil

Adsorption coefficient soil (Kd) : 1.5 L/kg, at 20 °C.

The soil sorption coefficient indicates that acetone is mobile in soil and may be transported by soil water.

Volatility:

Henry constant: 2.929 - 3.070 Pa*m³/mol (25 °C water).

Henry constant: 3.311 Pa*m³/mol (25 °C marine water).

Experimentally determined Henry's Law constants indicate a moderate volatility from water.

12.5 Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

12.6 Other adverse effects

General information: Terrestrial toxicity:

48h LD50 (Eisenia fetida): 0.1 - 1 mg/cm³

48h LD50 (Ambystoma mexicanum): 20,000 mg/L

48h LD50 (Xenopus laevis): 24,000 mg/L

In a study conducted according to OECD Guideline 207 (Earthworm, Acute Toxicity Tests: filter paper contact test), acetone showed a moderate toxicity to Eisenia fetida. In further short term toxicity studies, Ambystoma mexicanum and Xenopus laevis larvae exposed to acetone under static conditions in covered glass basins showed 48h LC50 values of 20,000 mg/L and 24,000 mg/L, respectively.

Do not allow to enter into ground-water, surface water or drains.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste key number: 07 01 04* = Wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals: organic solvents, halogen-free
* = Evidence for disposal must be provided.

Recommendation: Incinerate as hazardous waste according to applicable local, state, and federal regulations.
Do not dispose of with household waste.

Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation.
Handle contaminated packages in the same way as the substance itself.
Non-contaminated packages may be recycled.

SECTION 14: Transport information

14.1 UN number

ADR/RID, IMDG, IATA-DGR:

UN 1090

14.2 UN proper shipping name

ADR/RID, IMDG, IATA-DGR:

UN 1090, ACETONE

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14.3 Transport hazard class(es)

ADR/RID: Class 3, Code: F1
IMDG: Class 3, Subrisk -
IATA-DGR: Class 3



14.4 Packing group

ADR/RID, IMDG, IATA-DGR:
II

14.5 Environmental hazards

Marine pollutant: No

14.6 Special precautions for user

Land transport (ADR/RID)

Warning board: ADR/RID: Kemmler-number 33, UN number UN 1090
Hazard label: 3
Limited quantities: 1 L
EQ: E2
Contaminated packaging - Instructions: P001 IBC02 R001
Special provisions for packing together: MP19
Portable tanks - Instructions: T4
Portable tanks - Special provisions: TP1
Tank coding: LGBF
Tunnel restriction code: D/E

Sea transport (IMDG)

EmS: F-E, S-D
Special provisions: -
Limited quantities: 1 L
EQ: E2
Contaminated packaging - Instructions: P001
Contaminated packaging - Provisions: -
IBC - Instructions: IBC02
IBC - Provisions: -
Tank instructions - IMO: -
Tank instructions - UN: T4
Tank instructions - Provisions: TP1
Stowage and handling: Category E.
Properties and observations: Colourless, clear liquid, with a characteristic mint-like odour. Flashpoint: -20°C to -18°C c.c. Explosive limits: 2.5% to 13%. Miscible with water.

Air transport (IATA)

Hazard: Flamm. liquid
EQ: E2
Passenger Ltd.Qty.: Pack.Instr. Y341 - Max. Net Qty/Pkg. 1 L
Passenger: Pack.Instr. 353 - Max. Net Qty/Pkg. 5 L
Cargo: Pack.Instr. 364 - Max. Net Qty/Pkg. 60 L
ERG: 3H

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

Pollution category: Z
Vessel type: -
Product name: Acetone

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) and Regulation (EU) No 2015/830

INEOS Phenol

Acetone

Revision date: 1/12/2015
Version: 12

Language: en-GB,IE

Date of print: 6/1/2016
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SECTION 15: Regulatory information

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

National regulations - Great Britain

Hazchem-Code: •2YE
No data available

National regulations - EC member states

Volatile organic compounds (VOC):
100 % by weight = 790 g/L

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

Further information

Literature: REACH Registration Dossier Acetone. P&D-REACH Consortium, 2010.
ICSC 0087

Reason of change: Changes in section 14.7: Marpol, IBC: General revision
Date of first version: 19/11/2010

Department issuing data sheet

Contact person: see section 1: Dept. responsible for information

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.