

SENTINEL ACETONE

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATON AND COMPANY

1.1 Product Identifier

Trade Names	Sentinel Acetone
CAS Number	67-64-1
EINECS Number	200-662-2
REACH Registration Number	01-2119471330-49-XXXX

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

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

1. Manufacture, processing and distribution of substances and mixtures*
2. Use in laboratories
3. Use in coatings
4. Use in binders and release agents
5. Rubber production and processing
6. Polymer manufacturing
7. Polymer processing
8. Use in Cleaning Agents
9. Use in Oil and Gas field drilling and production operations
10. Blowing agents
11. Mining chemicals

*Examples for processing:

Use as an intermediate, use as a moment etc., use as a solvent, use for manufacturing of resins.

1.3 Details of the supplier of the safety data sheet

Principal Building Products Ltd
Babot Hall Industrial Estate,
Mangham Road, Rotherham, S61 4RJ
Tel: 01709 728150 Email: sales@pbpltd.co.uk Fax: 01709 724975

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Regulation 1272/2008 (GHS)

Flam. Liq. 2; H225	Highly flammable liquid and vapour
STOT SE 3; H336 (EUH336)	May cause drowsiness or dizziness Repeated exposure may cause skin dryness or cracking
Eye Irrit. 2; H319	Causes serious eye irritation

EEC Directive 67/548 and subsequent amendments. Directive 1999/45/CE and its amendments

F; R11	Highly flammable
Xi; R36	Irritating to eyes
R66	Repeated exposure may cause skin dryness or cracking
R67	Vapours may cause drowsiness and dizziness

2.2 Label elements

Labelling (CLP)



Signal Word		Danger
Hazard Statements:	H225 H319 H336 EUH066	Highly flammable liquid and vapour Causes serious eye irritation May cause drowsiness and dizziness Repeated exposure may cause skin dryness and cracking
Precautionary Statements	P210	Keep away from heat/sparks/open flames/hot surfaces – no smoking

S Phrase(s)	P243	Take precautionary measures against static discharge
	P305+P351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing
	P403+P235	Store in a well ventilated place. Keep cool
	P405	Store locked up
	S2	Keep out of the reach of children
	S9	Keep container in a well ventilated place
	S16	Keep away from sources of ignition – No smoking
	S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Chemical characterisation (substance)

- C₃ H₆ O = H₃C-CO-CH₃

- Acetone, Dimethyl ketone, 2-Propanone, Methyl ketone

CAS Number	EINECS Number	REACH registration number	RTECS No.	Customs Tariff No.
67-64-1	200-662-2	01-2119471990-49-XXXX	AL3150000	2914 11 00

4. FIRST AID MEASURES

4.1 Description of first aid measures

General Advice

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

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

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

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

Ingestion

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

No information available

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 oedema may develop

5. FIRE FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media: Extinguishing powder, alcohol resistant foam, carbon dioxide, water fog

Unsuitable extinguishing media: Full water jet

5.2 Special hazards arising from the substance or mixture

Highly flammable

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 fire-fighters

Special protective equipment for fire-fighters: Wear a self contained breathing apparatus and chemical protective clothing

Additional information: Hazchem-Code: 2YE

Do not expose to high temperature. Danger of bursting or 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

Temperature class: T1 (DIN 57165)

Gas class: II A (DIN 57165)

Fire class: B

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

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

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 leaks 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 spill 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: Remove all sources of ignition. 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 evaporate 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

Not required

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Precautions against fire and explosion:

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.

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

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

<p>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 Hints on joint storage: Do not store together with combustible or self-igniting materials or any highly flammable solids Peroxides may form when product is exposed to light and air 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</p>			
7.3 Specific end use(s)			
Solvent			
8. EXPOSURE CONTROLS/PERSONAL PROTECTION			
8.1 Control parameters			
Type		Limit Value	
Europe, IOELV: TWA		1210 mg/m ³ ; 500 ppm	
Great Britain: WEL-TWA		1210 mg/m ³ ; 500 ppm	
Great Britain: WEL-STEL		3620 mg/m ³ ; 1500 ppm	
Contains no substances with occupational exposure limits			
DN(M)EL/PNEC			
DN(M)EL's			
End User	Exposure Time	Route of entry	Value
Workers	Long term	Dermal	186 mg/kg bw/d
Workers	Short term	Inhalative	2420 mg/m ³
Workers	Long term	Inhalative	1210 mg/m ³
Consumers	Long term	Oral	62 mg/kg bw/d
Consumers	Long term	Dermal	62 mg/kg bw/d
Consumers	Long term	Inhalative	200 mg/m ³
Predicted No Effect Concentrations (PNEC): butan-1-ol; n-butanol			
PNECwater (freshwater) = 10.6 mg/l			
PNECwater (marine water) = 1.06 mg/l			
PNECwater (intermittent release) = 21 mg/l			
PNECsediment(freshwater) = 30.4 mg/kg dwt			
PNECsediment (marine water) = 3.04 mg/kg dwt			
PNECsoil = 0.112 mg/kg dwt			
PNECsewage treatment plant = 29.5 mg/l			
8.2 Exposure controls			
Explosion protection required. Provide good ventilation and/or an exhaust system in the work area			
Occupational exposure controls			
All information for relevant exposure scenarios including operation conditions and risk management measures are listed in 'Annex II: Worker Exposure and Risk Assessment'			
Respiratory protection			
For short exposures or in case of accident: Filter apparatus, type AX (EN 371)			
Hand protection			
Protective gloves according to EN 374			
Gloves material			
Butyl caoutchouc (butyl rubber) – Layer thickness >=0.5mm. Breakthrough time: >480 min			
Observe glove manufacturer's instructions concerning penetrability and breakthrough time			
Eye protection			
Tightly sealed safety glasses according to EN 166			
Skin protection			
Use solvent resistant protective clothing			
Recommendation: Flame retardant protective clothing, anti-static safety shoes according to EN 345 - 347			
General protection and hygiene measures			
All information for relevant exposure scenarios including operational conditions and risk management measures are listed in 'Annex II: Consumer Exposure and Risk Assessment'			
Protective Measures			
General industrial hygiene practice			
Environmental exposure controls			

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

9. PHYSICAL AND CHEMICAL PROPERTIES	
9.1 Information on basic physical and chemical properties	
Appearance	Liquid
Colour	Colourless, clear
Odour	Sweet aromatic
pH in water solution	at 10 g/l: neutral' 50% in H2O: 5 - 6
Boiling point/boiling range	56.06°C
Melting point/melting range	-94.7°C
Flash point	-17°C (c.c.)
Ignition temperature	465°C
Lower explosion limit	2.50 vol %
Upper explosion limit	14.30 vol %
Refraction index	at 20°C: 1.358 – 1.359
Vapour pressure	at 20°C: 240 hPa at 50°C: 800 hPa
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)
Viscosity, dynamic	At 20°C: 0.32 mPa*s
9.2 Other information	
Molecular weight	58.09 g/mol
Odour threshold	47.5 mg/m ³
Relative vapour density at 20°C (Air=1)	2.1
Dissociation constant	24.2 pKa at 25°C
Evaporation rate	2.0 (ether = 1)
Evaporation rate	5.6 (BuAc = 1)
Saturation concentration at 20°C	550 g/m ³
10. STABILITY AND REACTIVITY	
10.1 Reactivity	
Acetones react in presence of bases	
10.2 Chemical stability	
Vapours form potentially explosive mixtures with air. Heavier than air, they proceed at floor level and may back flash over great distances when ignited. May become electro-statically charged	
10.3 Possibility of hazardous reactions	
No hazardous reactions known	
10.4 Conditions to avoid	
Highly flammable. Concentrated vapours are heavier than air	
Forms an explosive mixture with air, also in empty, uncleaned containers	
May produce, when being mixed with chloridised 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 oxidising agents, alkalis and amines	
10.6 Hazardous decomposition products	
In case of fire may be liberated: Carbon monoxide and carbon dioxide	
11. TOXICOLOGICAL INFORMATION	
11.1 Information on toxicological effects	
Acute Oral Toxicity	
LD50 Rat 5800 mg/kg bw (OECD 401)	

<p>Acute Dermal Toxicity LD50 Rat >15800 mg/kg bw</p>
<p>Acute Inhalative Toxicity LC50 Rat 76 mg/L/4h</p>
<p>After inhalation Vapours may cause drowsiness and dizziness For the development of any overt signs of toxicity in humans, accidental exposures to extremely large amounts of acetone by inhalation and vapour or ingestion of liquid are necessary (e.g. several thousand ppm of acetone vapour)</p>
<p>After swallowing Gastric and intestinal problems</p>
<p>In case of skin contact Irritant. Repeated exposure may cause skin dryness or cracking Repeated exposure may cause skin dryness or cracking, due to defatting properties No indication for sensitising properties in humans</p>
<p>In case of eye contact Irritant Specific symptoms in animal studies (rabbit): irritant (OECD 405)</p>
<p>General remarks Mutagenicity: 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: Not carcinogen at long term exposure (mouse, dermal) Reproductive toxicity: Effects on fertility: No impairment of reproductive performance in animal experiments Developmental toxicity: None developmental toxicity (inhalation in rat, mouse, OECD 414) Other symptoms: Burning eyes and skin, fatigue, nausea, unconsciousness No known chronic effects, mild skin resorption Short term effect: 10000 ppm were well tolerated No symptoms did appear after 30 to 60 minutes</p>
<p>Further information No data available</p>
<p>12. ECOLOGICAL INFORMATION</p>
<p>12.1 Toxicity Aquatic toxicity: Acute effects: Fish toxicity: Freshwater species: 96h LC50 (Oncorhynchus mykiss): 5540 mg/l Marine species: 96h LC50 (Alburnus alburnus (laburnum)): 11000 mg/l Invertebrate toxicity: Freshwater species: 48h EC50 (Daphnia pulux (water flea)): 8800 mg/l Marine species: 24h EC50 (Artemisia salina): 2100 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: EC12: (30 min activated sludge; OECD 209): 1000 mg/l Long term effects: Long term toxicity to aquatic invertebrates: 28 day NOEC (Daphnia pulex (water flea); reproduction: 2212 mg/l No information on longer term effects of fish and algae available Long term effects on aquatic organisms are not relevant due to the rapid elimination of in water Water hazard class: 1 = slightly hazardous to water (WGK catalogue number 6)</p>
<p>12.2 Persistence and degradability Further details:</p>

<p>Abiotic degradation: DT50, 19-114 d (Air, indirect photodegradation by reaction with OH radicals) Abiotic degradation: none (Water, hydrolysis) Biodegradation: 91%/28d (OECD 301B) ThOD 84%/5d (BOD5, APHA 219) COD: 2.21 gO₂/g Product is readily biodegradable Effects on sewage plant: In activated sludge: 100%/4d (anaerobic conditions; Warburg Respirometer)</p>	
<p>12.3 Bio accumulative potential Bioconcentration factor (BCF): 3 (calculated, BCFWIN v2.17)</p>	
<p>12.4 Mobility in soil Adsorption coefficient soil (K_d): 1.5 L/kg at 20oC The soil sorption coefficient indicates that acetone is mobile in soil and may be transported by soil water Volatility: Henry constant: 2929 – 3070 Pa*m³/mol (25oC in water) Henry constant: 3311 Pa*m³/mol (25oC marine water) Experimentally determined Henry's Law constants indicate a moderate volatility from water</p>	
<p>12.5 Results of PBT and vPvB assessment This substance does not meet the PBHT/vPvB criteria of REACH, annex XIII</p>	
<p>12.6 Other adverse effects General information: Terrestrial toxicity: 48h LD50 (Eisenia fetida): 0.1 – 1 µg/cm³ 48h LD50 (Ambystoma mexicanum): 20000 mg/l 48h LD50 (Xenopus laevis): 24000 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</p>	
<p>13. DISPOSAL CONSIDERATIONS</p>	
<p>13.1 Waste treatment methods Product Waste key number: 070104* = 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</p>	
<p>14. TRANSPORT INFORMATION</p>	
<p>14.1 UN Number ADR IMDG IATA</p>	<p>1090 1090 1090</p>
<p>14.2 Proper Shipping Name ADR IMDG IATA</p>	<p>UN 1090, ACETONE ACETONE ACETONE</p>
<p>14.3 Transport hazard class ADR IMDG IATA</p>	<p>Class 3, Code: F1 Class 3 Code – Class 3</p>

14.4 Packing group ADR IMDG IATA	II II II
14.5 Environmental Marine pollutant	No
14.6 Special precautions for users Land transport (ADR/RID) Warning board Hazard label Limited quantities EQ Contaminated packaging: Instructions Special provisions for packing together Portable tanks: Instructions Portable tanks: Special instructions Tank coding: Tunnel restriction code: Sea Transport (IMDG) EmS: Special provisions Limited quantities EQ Contaminated packaging: Instructions Contaminated packaging: Provisions IBC: Instructions IBC: Provisions Tank instructions: IMO Tank instructions: UN Tank instructions: Provisions Stowage and segregation Properties and observations Air Transport (IATA) Hazard EQ Passenger Ltd Qty Passenger Cargo ERG	ADR/RID: Kemler number 33, UN number 1090 3 LQ4 E2 P001 IBC 02 R001 MP19 T4 TP1 LGBF D/E F-E, S-D - 1L E2 P001 - IBC02 - T3 T4 TP1 Category E Colourless, clear liquid with a characteristic mint-like odour. Flashpoint: -20°C - -18°C c.c. Explosive limits: 2.5% to 13% Miscible with water Flamm. Liquid E2 Y305 – maximum quantity: 1 L 305 – maximum quantity: 5 L 307 – maximum quantity: 60 L 3H
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No data available	
15. REGULATORY INFORMATION	
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	
National regulations – Great Britain Hazchem Code: 2YE National regulations – Germany Storage Class: 3 = Flammable liquids Water Hazard Class: 1 = Slightly hazardous to water (WGK catalogue number 6) Incident Regulation: nr. 7b Information on working limitations: Observe employment restrictions concerning young persons Observe employment restrictions for expectant or nursing mothers National regulations – Switzerland Volatile organic compounds (VOC):	

100% by weight = 790 g/l

Further regulations, limitations and legal requirements:
According to Positive list of volatile organic compounds (VOC), version 8.10.2002, Dok, 814.018)

National regulations – EC member states
Volatile organic compounds (VOC):
100% by weight = 790 g/l

National regulations – USA
TSCA Inventory – Listed
TSCA HPVC: not listed
Clean Air Act:
SOCMI Chemical: yes
Other Environmental Laws:
CERCLA: RQ 5000 lbs
RCRA Hazardous Wastes: Code U002
RCRA Groundwater Monitoring: Methods 8240/PQL 100
NIOSH Recommendations:
Occupational Health Guideline: 0004*
Hazard Rating Systems
NFPA Hazard Rating:
Health: 1 (Slight)
Fire: 3 (Serious)
Reactivity: 0 (Minimal)
HMIS Version III Rating:
Health: 1 (Slight)
Flammability: 3 (Serious)
Physical Hazard: 0 (Minimal)
Personal Protection: X = consult your supervisor
National Regulations – Canada
CAS 67-1 is listed on Canada's DSL and Ingredient Disclosure Lists
Classification: B2, D2B
National regulations – Japan
MITI: 2-542

15.2 Chemical safety assessment

For this substance a chemical safety assessment has been carried out

16. OTHER INFORMATION

Further remarks

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

Source of key data used to compile the data sheet

Supplier information

Modifications from last revision

All sections revised according to CLP/GHS requirements

Date: 31/12/10

Notes

Sentinel ACETONE complies with the following standards:

European Pharmacopoeia
British Standard BS 509:1987
American Standard ASTM D329-86
German Standard DIN 53247

Exclusion of Liability

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Health and Safety

A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on the handling precautions and emergency procedures. This must be consulted fully before handling, storage and use.