

# SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

## ACETIC ANHYDRIDE

Revision Date: 23-Nov-2010

Revision Number: 9

### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**Product Identifier**

Product Name ACETIC ANHYDRIDE

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

Recommended Use Additive

Uses Advised Against No information available

**Details of the supplier of the safety data sheet**

Halliburton Energy Services  
Halliburton House, Howemoss Place  
Kirkhill Industrial Estate  
Dyce  
Aberdeen, AB21 0GN  
United Kingdom

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

[www.halliburton.com](http://www.halliburton.com)

For further information, please contact

E-Mail address: [fdunexchem@halliburton.com](mailto:fdunexchem@halliburton.com)**Emergency telephone number**

+44 1224 795277 or +1 281 575 5000

**Emergency telephone \$45 - (EC)1272/2008**

|                |                                                                                                                         |
|----------------|-------------------------------------------------------------------------------------------------------------------------|
| Europe         | 112                                                                                                                     |
| Denmark        | Poison Control Hotline (DK): +45 82 12 12 12                                                                            |
| France         | ORFILA (FR): + 01 45 42 59 59                                                                                           |
| Germany        | Poison Center Berlin (DE): +49 030 30686 790                                                                            |
| Italy          | Poison Center, Milan (IT): +39 02 6610 1029                                                                             |
| Netherlands    | National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals) |
| Norway         | Poisons Information (NO): + 47 22 591300                                                                                |
| Poland         | Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97                                  |
| Spain          | Poison Information Service (ES): +34 91 562 04 20                                                                       |
| United Kingdom | NHS Direct (UK): +44 0845 46 47                                                                                         |

### 2. HAZARDS IDENTIFICATION

**Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

|                                    |                    |
|------------------------------------|--------------------|
| Acute Oral Toxicity                | Category 4- H302   |
| Acute Inhalation Toxicity - Vapors | Category 4- H332   |
| Skin Corrosion / irritation        | Category 1 B- H314 |

**2. HAZARDS IDENTIFICATION**

Flammable liquids.

Category 3- H314

**Classification according to EU Directives 67/548/EEC or 1999/45/EC***For the full text of the R-phrases mentioned in this Section, see Section 16***Classification**

C - Corrosive.

Xn - Harmful.

**Risk Phrases**

R10 Flammable.

R34 Causes burns.

R20/22 Harmful by inhalation and if swallowed.

**Label Elements****Hazard Pictograms****Signal Word****Danger****Hazard Statements**

H314 - Causes severe skin burns and eye damage

H226 - Flammable liquid and vapor

H332 - Harmful if inhaled

H302 - Harmful if swallowed

**Contains****Substances**

Acetic anhydride

**CAS Number**

108-24-7

**Precautionary Statements - EU (§28, 1272/2008)**

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
 P233 - Keep container tightly closed  
 P240 - Ground/Bond container and receiving equipment  
 P241 - Use explosion-proof electrical/ventilating/lighting/equipment  
 P242 - Use only non-sparking tools  
 P243 - Take precautionary measures against static discharge  
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray  
 P264 - Wash face, hands and any exposed skin thoroughly after handling  
 P280 - Wear protective gloves/eye protection/face protection  
 P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
 P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
 P363 - Wash contaminated clothing before reuse  
 P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing  
 P310 - Immediately call a POISON CENTER or doctor/physician  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 P370 + P380 + P375 - In case of fire, use water/water spray/water jet/carbon dioxide/sand/foam/alcohol resistant foam/chemical powder for extinction

**Other Hazards**

None known

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

| Substances       | EINECS    | CAS Number | PERCENT   | EEC Classification          | EU - CLP Substance Classification                                                         | REACH No.         |
|------------------|-----------|------------|-----------|-----------------------------|-------------------------------------------------------------------------------------------|-------------------|
| Acetic anhydride | 203-564-8 | 108-24-7   | 60 - 100% | R10<br>Xn; R20/22<br>C; R34 | Acute Tox. 4 (H302)<br>Acute Tox. 4 (H332)<br>Skin Corr. 1B (H314)<br>Flam. Liq. 3 (H226) | No data available |

For the full text of the R-phrases mentioned in this Section, see Section 16

**4. FIRST AID MEASURES****Description of first aid measures****Inhalation**

If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

**Eyes**

In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

**Skin**

In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse. Destroy or properly dispose of contaminated shoes.

**Ingestion**

Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

**Most Important symptoms and effects, both acute and delayed**

May cause eye, skin, and respiratory burns.

**Indication of any immediate medical attention and special treatment needed****Notes to Physician**

Treat symptomatically

**5. FIREFIGHTING MEASURES****Extinguishing mediaó****Suitable Extinguishing Media**

Water fog, carbon dioxide, foam, dry chemical.

**Extinguishing media which must not be used for safety reasons**

Water must not be used with open containers.

**Special hazards arising from the substance of mixture**

**Special Exposure Hazards**

May be ignited by heat, sparks or flames. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce toxic gases.

**Advice for firefighters****Special Protective Equipment for Fire-Fighters**

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

Use appropriate protective equipment.  
See Section 12 for additional information

**Environmental precautions**

Prevent from entering sewers, waterways, or low areas.

**Methods and material for containment and cleaning up**

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Neutralize to pH of 6-8. Scoop up and remove.

**Reference to other sections**

See Section 12 for additional information.

## 7. HANDLING AND STORAGE

**Precautions for Safe Handling**

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice

**Conditions for safe storage, including any incompatibilities**

Store away from alkalis. Store away from oxidizers. Keep from heat, sparks, and open flames. Keep container closed when not in use.

**Specific End Use(s)**

**Exposure Scenario** No information available

**Other Guidelines** No information available

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

| Substances       | EU             | UK OEL  | Netherlands           | France OEL     | Germany MAK/TRK |
|------------------|----------------|---------|-----------------------|----------------|-----------------|
| Acetic anhydride | Not applicable | 0.5 ppm | 2,5 mg/m <sup>3</sup> | Not applicable | 5 ppm           |

| Substances       | Italy          | Poland               | Hungary              | Czech Republic      | Denmark        |
|------------------|----------------|----------------------|----------------------|---------------------|----------------|
| Acetic anhydride | Not applicable | 10 mg/m <sup>3</sup> | 20 mg/m <sup>3</sup> | 4 mg/m <sup>3</sup> | Not applicable |

**Derived No Effect Level (DNEL)** No information available.

**Predicted No Effect Concentration (PNEC)** No information available.

**Exposure controls****Engineering Controls**

Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

**Personal protective equipment****Respiratory Protection**

Organic vapor/acid gas respirator with a dust/mist filter.

**Hand Protection**

Butyl rubber gloves.

**Skin Protection**

Rubber boots. Full protective chemical resistant clothing.

**Eye Protection**

Chemical goggles; also wear a face shield if splashing hazard exists.

**Other Precautions**

Eyewash fountains and safety showers must be easily accessible.

**Environmental Exposure Controls**

No information available

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

**Physical State:** Liquid  
**Odor:** Vinegar

**Color:** Clear colorless  
**Odor Threshold:** No information available

| <u>Property</u>                               | <u>Values</u>            |
|-----------------------------------------------|--------------------------|
| <u>Remarks/ Method</u>                        |                          |
| <b>pH:</b>                                    | No data available        |
| <b>Melting Point/Range</b>                    | No data available        |
| <b>Freezing Point/Range (C):</b>              | -74°C                    |
| <b>Boiling Point/Range</b>                    | 138°C                    |
| <b>Flash Point</b>                            | 48°C                     |
| <b>PMCC</b>                                   |                          |
| <b>upper flammability limit</b>               | 10.3%                    |
| <b>lower flammability limit</b>               | 2.9%                     |
| <b>Evaporation rate</b>                       | 0.46                     |
| <b>Vapor Pressure</b>                         | 4 hPa                    |
| <b>Vapor Density</b>                          | 3.5                      |
| <b>Specific Gravity</b>                       | 1.08                     |
| <b>Water Solubility</b>                       | Miscible with water      |
| <b>Solubility in other solvents</b>           | No data available        |
| <b>Partition coefficient: n-octanol/water</b> | -0.27                    |
| <b>Autoignition Temperature</b>               | 315°C                    |
| <b>Decomposition Temperature</b>              | No data available        |
| <b>Viscosity</b>                              | No data available        |
| <b>Explosive Properties</b>                   | No information available |
| <b>Oxidizing Properties</b>                   | No information available |
| <br><b>Other information</b>                  |                          |
| <b>Molecular Weight</b>                       | 102.08                   |
| <b>VOC Content (%)</b>                        | No data available        |

## 10. STABILITY AND REACTIVITY

### Reactivity

Not applicable

### Chemical Stability

Stable

### Possibility of Hazardous Reactions

Will Not Occur

### Conditions to Avoid

Keep away from heat, sparks and flame.

### Incompatible Materials

Reacts with water. Strong acids. Strong alkalis. Strong oxidizers. Alcohols. Amines.

### Hazardous Decomposition Products

Carbon monoxide and carbon dioxide.

## 11. TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

#### Acute Toxicity

|                     |                                                                                                                                                  |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b>   | Causes severe respiratory irritation.                                                                                                            |
| <b>Eye Contact</b>  | May cause eye burns.                                                                                                                             |
| <b>Skin Contact</b> | Causes severe burns.                                                                                                                             |
| <b>Ingestion</b>    | Causes burns of the mouth, throat and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea. May cause increase in respiration rate. |

**Chronic Effects/Carcinogenicity** Prolonged, excessive exposure may cause erosion of the teeth.

**11. TOXICOLOGICAL INFORMATION**

| Substances       | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|------------------|-----------|-------------|-----------------|
| Acetic anhydride | 630 mg/kg | 4000 mg/kg  | 4.2 mg/L 4 h    |

**12. ECOLOGICAL INFORMATION****Toxicity****Ecotoxicity Effects**

| Substances       | Toxicity to Algae        | Toxicity to Fish                | Toxicity to Microorganisms | Daphnia Magna (Water Flea)    |
|------------------|--------------------------|---------------------------------|----------------------------|-------------------------------|
| Acetic anhydride | No information available | LC50: 265 mg/L (Leuciscus idus) | No information available   | EC50: 55 mg/L (Daphnia magna) |

**Persistence and degradability**

Readily biodegradable

**Bioaccumulative potential**

Does not bioaccumulate

| Substances       | Log Pow |
|------------------|---------|
| Acetic anhydride | -0.27   |

**Mobility in soil**

No information available

**Results of PBT and vPvB assessment**

No information available.

**Other adverse effects****Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors

**13. DISPOSAL CONSIDERATIONS****Waste treatment methods****Disposal Method**

Disposal should be made in accordance with federal, state, and local regulations.

**Contaminated Packaging**

Follow all applicable national or local regulations.

**14. TRANSPORT INFORMATION****IMDG/IMO**

UN Number: UN1715,  
UN Proper Shipping Name: Acetic Anhydride  
Transport Hazard Class(es): , 8  
Packing Group: , II  
EMS: EmS F-E, S-C

**RID**

UN Number: UN1715,  
UN Proper Shipping Name: Acetic Anhydride  
Transport Hazard Class(es): , 8  
Packing Group: , II

**ADR**

UN Number: UN1715,

**14. TRANSPORT INFORMATION**

**UN Proper Shipping Name:** Acetic Anhydride  
**Transport Hazard Class(es):** , 8  
**Packing Group:** , II

**IATA/ICAO**

**UN Number:** UN1715,  
**UN Proper Shipping Name:** Acetic Anhydride  
**Transport Hazard Class(es):** , 8  
**Packing Group:** , II

**Special Precautions for User** None

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

**15. REGULATORY INFORMATION****Safety, health and environmental regulations/legislation specific for the substance or mixture****International Inventories**

**EINECS Inventory** This product, and all its components, complies with EINECS  
**US TSCA Inventory** All components listed on inventory or are exempt.  
**Canadian DSL Inventory** All components listed on inventory or are exempt.

**Legend**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**Germany, Water Endangering Classes (WGK)** WGK 1: Low hazard to waters.

**Chemical Safety Assessment**

No information available

**16. OTHER INFORMATION****Full text of R-phrases referred to under Sections 2 and 3**

R10 Flammable.

R34 Causes burns.

R20/22 Harmful by inhalation and if swallowed.

**Key literature references and sources for data**

[www.ChemADVISOR.com/](http://www.ChemADVISOR.com/)

**Revision Date:** 23-Nov-2010

**Revision Note** Not applicable

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**

**Disclaimer Statement**

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**End of Safety Data Sheet**