

# Safety Data Sheet

## Ether, Anhydrous, Absolute, ACS

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Ether, Anhydrous, Absolute, ACS

**Synonyms/Generic Names:** Ether, Ethyl Ether, Ethyl Oxide, Diethyl Oxide

**Product Number:** 2035

**Product Use:** Industrial, Manufacturing or Laboratory use

**Manufacturer:** Columbus Chemical Industries, Inc.  
N4335 Temkin Rd.  
Columbus, WI. 53925

**For More Information:** 920-623-2140 (Monday-Friday 8:00-4:30)  
[www.columbuschemical.com](http://www.columbuschemical.com)

**In Case of Emergency Call:** CHEMTREC - 800-424-9300 or 703-527-3887 (24 Hours/Day, 7 Days/Week)

### 2. HAZARDS IDENTIFICATION

**OSHA Hazards:** Flammable liquid, Target organ effect, Irritant, Harmful by ingestion

**Target Organs:** Central nervous system

**Signal Words:** Danger

**Pictograms:**



**GHS Classification:**

|                                                |             |
|------------------------------------------------|-------------|
| Flammable liquids                              | Category 1  |
| Acute toxicity, Oral                           | Category 4  |
| Eye irritation                                 | Category 2A |
| Specific target organ toxicity-single exposure | Category 3  |

**GHS Label Elements, including precautionary statements:**

**Hazard Statements:**

|      |                                       |
|------|---------------------------------------|
| H224 | Extremely flammable liquid and vapor. |
| H302 | Harmful if swallowed.                 |
| H319 | Causes serious eye irritation.        |
| H336 | May cause drowsiness or dizziness.    |

**Precautionary Statements:**

|      |                                                                  |
|------|------------------------------------------------------------------|
| 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.                                                                            |
| P261           | Avoid breathing dust/fume/gas/mist/vapors/spray.                                                                                 |
| P264           | Wash hands thoroughly after handling.                                                                                            |
| P270           | Do not eat, drink or smoke when using this product.                                                                              |
| P271           | Use only outdoors or in a well-ventilated area.                                                                                  |
| P280           | Wear protective gloves/protective clothing/eye protection/face protection.                                                       |
| P301+P312      | IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.                                                          |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.                              |
| P304+P340      | IF INHALED: Remove person to fresh air and keep comfortable for breathing.                                                       |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P312           | Call a POISON CENTER/doctor/physician if you feel unwell.                                                                        |
| P330           | Rinse mouth.                                                                                                                     |
| P337+P313      | If eye irritation persists: Get medical advice/attention.                                                                        |
| P370+P378      | In case of fire: Use appropriate media to extinguish.                                                                            |
| P403+P235      | Store in a well-ventilated place. Keep cool.                                                                                     |
| P405           | Store locked up.                                                                                                                 |
| P501           | Dispose of contents/container in accordance with local regulations.                                                              |

#### Potential Health Effects

|                   |                                                                                                            |
|-------------------|------------------------------------------------------------------------------------------------------------|
| <b>Eyes</b>       | Causes eye irritation.                                                                                     |
| <b>Inhalation</b> | May be harmful if inhaled. Causes respiratory tract irritation. Vapors may cause drowsiness and dizziness. |
| <b>Skin</b>       | May be harmful if absorbed through skin. Causes skin irritation.                                           |
| <b>Ingestion</b>  | Harmful if swallowed.                                                                                      |

#### NFPA Ratings

|                        |               |
|------------------------|---------------|
| <b>Health</b>          | 2             |
| <b>Flammability</b>    | 4             |
| <b>Reactivity</b>      | 0             |
| <b>Specific hazard</b> | Not Available |

#### HMIS Ratings

|                   |               |
|-------------------|---------------|
| <b>Health</b>     | 2             |
| <b>Fire</b>       | 4             |
| <b>Reactivity</b> | 0             |
| <b>Personal</b>   | Not Available |

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component     | Weight % | CAS #   | EINECS# / ELINCS# | Formula                          | Molecular Weight |
|---------------|----------|---------|-------------------|----------------------------------|------------------|
| Diethyl Ether | >98      | 60-29-7 | 200-467-2         | C <sub>4</sub> H <sub>10</sub> O | 74.12 g/mol      |
| Ethanol       | ≤2       | 64-17-5 | 200-578-6         | C <sub>2</sub> H <sub>6</sub> O  | 46.07 g/mol      |

### 4. FIRST-AID MEASURES

|                   |                                                                                                                                                                        |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eyes</b>       | Rinse with plenty of water for at least 15 minutes and seek medical attention immediately.                                                                             |
| <b>Inhalation</b> | Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately. |
| <b>Skin</b>       | Flush with plenty of water for at least 15 minutes while removing contaminated clothing and wash using soap. Get medical attention.                                    |
| <b>Ingestion</b>  | <b>Do Not Induce Vomiting!</b> Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention.                  |

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## 5. FIRE-FIGHTING MEASURES

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|                                                                      |                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Suitable (and unsuitable) extinguishing media</b>                 | Flammable liquid. For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams or water may be ineffective. Cool all affected containers with water. |
| <b>Special protective equipment and precautions for firefighters</b> | Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots                                                                                                                                                                                                                    |
| <b>Specific hazards arising from the chemical</b>                    | Emits toxic fumes (carbon oxides) under fire conditions. See also Stability and Reactivity section. Vapors can travel to a source of ignition and flash back. Containers may explode in a fire. Cool containers from a distance using water spray. SENSITIVE TO STATIC DISCHARGE.                                                     |

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## 6. ACCIDENTAL RELEASE MEASURES

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|                                                                            |                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions, protective equipment and emergency procedures</b> | See section 8 for recommendations on the use of personal protective equipment.                                                                                                                                                                                               |
| <b>Environmental precautions</b>                                           | Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements.                                                                                                                                    |
| <b>Methods and materials for containment and cleaning up</b>               | Absorb spill with vermiculite or other noncombustible absorbent material, then place in a suitable container for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations. |

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## 7. HANDLING AND STORAGE

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### Precautions for safe handling

Use with adequate ventilation and grounding. Wash thoroughly after using. Keep container closed when not in use. Keep away from sources of ignition. No smoking. Take measure to prevent the buildup of electrostatic charge.

### Conditions for safe storage, including any incompatibilities

Store in tightly closed, original containers in a cool, dry, well ventilated area. Store between 55-80°F for product stability. Do not store with strong oxidizing agents. Avoid sunlight

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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**Occupational exposure controls:** Ventilation and appropriate grounding of containers.

| Component     | Exposure Limits                   | Basis | Entity |
|---------------|-----------------------------------|-------|--------|
| Diethyl Ether | 400 ppm<br>1210 mg/m <sup>3</sup> | TLV   | ACGIH  |
|               | 500 ppm<br>1520 mg/m <sup>3</sup> | STEL  | ACGIH  |
|               | 400 ppm<br>1200 mg/m <sup>3</sup> | PEL   | OSHA   |
|               | 1900 ppm                          | IDLH  | OSHA   |

TWA: Time Weighted Average over 8 hours of work.

TLV: Threshold Limit Value over 8 hours of work.

REL: Recommended Exposure Limit

PEL: Permissible Exposure Limit  
 STEL: Short Term Exposure Limit during x minutes.  
 IDLH: Immediately Dangerous to Life or Health  
 WEEL: Workplace Environmental Exposure Levels  
 CEIL: Ceiling

#### Personal Protection:

|                   |                                                                                                                                                                                                          |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eyes</b>       | Wear chemical safety glasses or goggles, and face shield.                                                                                                                                                |
| <b>Inhalation</b> | Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.                                                                                              |
| <b>Skin</b>       | Wear nitrile or rubber gloves, and full body covering. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. |
| <b>Other</b>      | Not Available                                                                                                                                                                                            |

#### Other Recommendations

Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                             |                           |
|---------------------------------------------|---------------------------|
| Appearance (physical state, color, etc.)    | Clear, colorless liquid   |
| Odor                                        | Mild alcohol              |
| Odor threshold                              | 8.9 ppm                   |
| pH                                          | Not Available             |
| Melting point/freezing point                | -116°C (-177°F)           |
| Initial boiling point and boiling range     | 35°C (94°F)               |
| Flash point                                 | -45°C (-49°F) (closed Cup |
| Evaporation rate                            | Not Available             |
| Flammability (solid, gas)                   | Flammable                 |
| Upper/lower flammability or explosive limit | 39%-1.9%                  |
| Vapor pressure                              | 440 mmHg at 20°C          |
| Vapor density                               | 2.6                       |
| Relative density                            | 0.706 g/mL at 25°C (77°F) |
| Solubility (ies)                            | 69 g/L                    |
| Partition coefficient: n-octanol/water      | Not Available             |
| Auto-ignition temperature                   | 160°C (320°F)             |
| Decomposition temperature                   | Not Available             |

## 10. STABILITY AND REACTIVITY

|                                           |                                                                                                                                                                                                                                                                  |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Chemical Stability</b>                 | Not stable. Prolonged exposure to sunlight and air may form unstable peroxides. Peroxide formation may occur in ether containers that have been opened and remain in storage for more than 6 months. Peroxides can be detonated by friction, impact, or heating. |
| <b>Possibility of Hazardous Reactions</b> | Will not occur.                                                                                                                                                                                                                                                  |
| <b>Conditions to Avoid</b>                | Keep away from heat, flame and sparks.                                                                                                                                                                                                                           |
| <b>Incompatible Materials</b>             | Oxidizers and strong acids.                                                                                                                                                                                                                                      |
| <b>Hazardous Decomposition Products</b>   | Carbon oxides.                                                                                                                                                                                                                                                   |

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## 11. TOXICOLOGICAL INFORMATION

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### Acute Toxicity

|                    |                                              |
|--------------------|----------------------------------------------|
| <b>Skin</b>        | Skin – rabbit – 14.2 g/kg                    |
| <b>Eyes</b>        | Not Available                                |
| <b>Respiratory</b> | LC50 Inhalation – mouse – 30 min – 31000 ppm |
| <b>Ingestion</b>   | LD50 Oral – rat – 1215 mg/kg                 |

### Carcinogenicity

|              |                                                                                                                                                          |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IARC</b>  | No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. |
| <b>ACGIH</b> | No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.            |
| <b>NTP</b>   | No components of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.                 |
| <b>OSHA</b>  | No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.             |

### Signs & Symptoms of Exposure

|                   |                                                                                          |
|-------------------|------------------------------------------------------------------------------------------|
| <b>Eyes</b>       | Redness, irritation, tearing.                                                            |
| <b>Inhalation</b> | Coughing, wheezing, irritation of upper respiratory tract.                               |
| <b>Skin</b>       | Irritation, redness, drying, cracking. Prolonged exposure may cause defatting of tissue. |
| <b>Ingestion</b>  | Nausea, vomiting, diarrhea, irritation of gastrointestinal tract.                        |

|                                       |                                    |
|---------------------------------------|------------------------------------|
| <b>Chronic Toxicity</b>               | Not Available                      |
| <b>Teratogenicity</b>                 | Not Available                      |
| <b>Mutagenicity</b>                   | Not Available                      |
| <b>Embryotoxicity</b>                 | Not Available                      |
| <b>Specific Target Organ Toxicity</b> | May cause drowsiness or dizziness. |
| <b>Reproductive Toxicity</b>          | Not Available                      |
| <b>Respiratory/Skin Sensitization</b> | Not Available                      |

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## 12. ECOLOGICAL INFORMATION

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### Ecotoxicity

|                             |                                                                    |
|-----------------------------|--------------------------------------------------------------------|
| <b>Aquatic Vertebrate</b>   | LC50 – Pimephales promelas (fathead minnow) – 2560 mg/l – 96 hours |
| <b>Aquatic Invertebrate</b> | EC50 - Daphnia magna (Water flea) - 165 mg/l - 24 h                |
| <b>Algae</b>                | NOEC - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h   |

|                                      |               |
|--------------------------------------|---------------|
| <b>Persistence and Degradability</b> | Not Available |
| <b>Bioaccumulative Potential</b>     | Not Available |
| <b>Mobility in Soil</b>              | Not Available |
| <b>PBT and vPvB Assessment</b>       | Not Available |
| <b>Other Adverse Effects</b>         | Not Available |

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## 13. DISPOSAL CONSIDERATIONS

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|                                  |                                                                                                                                                                                                                   |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Waste Product or Residues</b> | Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product or residue. |
| <b>Product Containers</b>        | Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container.  |

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

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## 14. TRANSPORTATION INFORMATION

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|                  |                                |
|------------------|--------------------------------|
| US DOT           | UN1155, Diethyl Ether, 3, pg I |
| TDG              | UN1155, DIETHYL ETHER, 3, PG I |
| IMDG             | UN1155, DIETHYL ETHER, 3, PG I |
| Marine Pollutant | No                             |
| IATA/ICAO        | UN1155, Diethyl Ether, 3, pg I |

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## 15. REGULATORY INFORMATION

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|                           |                                                               |
|---------------------------|---------------------------------------------------------------|
| TSCA Inventory Status     | All ingredients are listed on the TSCA inventory.             |
| DSCL (EEC)                | All ingredients are listed on the DSCL inventory.             |
| California Proposition 65 | Not Listed                                                    |
| SARA 302                  | Not Listed                                                    |
| SARA 304                  | Not Listed                                                    |
| SARA 311                  | Fire Hazard, Acute Health Hazard, Chronic Health Hazard       |
| SARA 312                  | Fire Hazard, Acute Health Hazard, Chronic Health Hazard       |
| SARA 313                  | Listed: Diethyl Ether                                         |
| WHMIS Canada              | Class B-2: Flammable and combustible liquid- Flammable liquid |

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## 16. OTHER INFORMATION

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| Revision   | Date       |
|------------|------------|
| Revision 1 | 07-26-2011 |
| Revision 2 | 02/04/2015 |
| Revision 3 | 09/21/2017 |

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