



Data Sheet

Issued:

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Product Name

Acetone

Product Code**U8903 Deer Park, TX (USA)****Product Category****Ketones****CAS Registry Number**

67-64-1

Synonym(s)

2-propanone, dimethyl ketone, DMK

Description

Acetone is a colorless, low boiling easy pouring liquid with characteristic odor, and is miscible in all proportions with water, alcohols, many hydrocarbons and other organic liquids. It has good solvent properties for vegetable and animal fats, cellulose ether, natural and synthetic resins and many other organic substances.

Sales Specification

| Property | Unit | Min | Max | Method |
|--------------------------------|------------------------------------|--------|--------|--------------|
| Appearance | Clear & Free From Suspended Matter | | | ASTM D4176 |
| Purity | %m/m | 99.5 | | ASTM D2804 |
| Isopropyl alcohol | %m/m | | 0.05 | Q-044-S |
| Methanol | %m/m | | 0.05 | Q-044-S |
| Benzene | mg/kg | | 30 | Q-044-S |
| Water | %m/m | | 0.50 | ASTM D1364 |
| Aldehydes as HCHO | %m/m | | 0.002 | ACS 1 |
| Alkalinity as NH ₃ | %m/m | | 0.001 | ASTM D1614 1 |
| Acidity as Acetic acid | %m/m | | 0.002 | ASTM D1613 |
| Organic Volatile Impurities | | Pass | | NF 1 |
| Color | Pt-Co | | 5 | ASTM D1209 |
| Specific Gravity @20/20°C | | 0.7910 | 0.7925 | ASTM D4052 1 |
| Specific Gravity @25/25°C | | 0.7865 | 0.7880 | ASTM D4052 1 |
| Permanganate Fading Time @25°C | minutes | 120 | | ASTM D1363 |
| Non Volatile Matter | mg/100ml | | 1 | ACS 1 |
| Distillation Range | °C | | 0.8 | ASTM D1078 1 |
| Distillation Range incl. 56.1C | °C | Pass | | ASTM D1078 1 |
| Solubility in Water @25°C | | Pass | | ASTM D1722 |

(1) Agreed Specification limits - no results reported

Shell Acetone as produced and handled through loading into tank cars or tank trucks and delivery, if prepaid by Shell, complies with current Good Manufacturing Practices; the current National Formulary Monograph; ASTM D329; and the ACS 10th Edition General Use Requirements.

Typical Properties

| Property | Unit | Method | Value |
|---------------------------------------|---------------------------------------|--------------|----------------|
| Purity | % m/m | ASTM D2804 | min 99.5 |
| Water | % m/m | ASTM D1364 | 0.25 |
| Density @20°C | kg/l | ASTM D4052 | 0.791 |
| Cubic Expansion Coefficient @20°C | (10 ⁻⁴)/°C | Calculated | 14 |
| Refractive Index @20°C | - | ASTM D1218 | 1.359 |
| Refractive Index @25°C | - | ASTM D1218 | 1.356 |
| Color | Pt-Co | ASTM D1209 | < 5 |
| Permanganate Fading Time @25°C | minutes | ASTM D1363 | 180 |
| Acidity as Acetic Acid | % m/m | ASTM D1613 | 0.001 |
| Boiling Point | °C | - | 56 |
| Relative Evaporation Rate (nBuAc=1) | - | ASTM D3539 | 5.6 |
| Antoine Constant A # | kPa, °C | - | 6.25478 |
| Antoine Constant B # | kPa, °C | - | 1216.69 |
| Antoine Constant C # | kPa, °C | - | 230.275 |
| Antoine Constants: Temperature range | °C | - | -50 to +70 |
| Vapor Pressure @20°C | kPa | Calculated | 25 |
| Vapor Pressure @50°C | kPa | Calculated | 82 |
| Saturated Vapor Concentration @20°C | g/m ³ | Calculated | 589 |
| Benzene | mg/kg | GC | 10 |
| Flash Point | °C | IP 170 | -18 |
| Auto Ignition Temperature | °C | ASTM E659 | 540 |
| Explosion Limit: Lower | %v/v | - | 2.1 |
| Explosion Limit: Upper | %v/v | - | 12.8 |
| Electrical Conductivity @20°C | μS/m | - | 20 |
| Dielectric Constant @20°C | - | - | 21.4 |
| VOC Content | - | EPA | Exempt |
| Freezing Point | °C | - | -95 |
| Surface Tension @20°C | mN/m | Du Nouy ring | 24 |
| Viscosity @20°C | mPa.s | ASTM D445 | 0.32 |
| Hildebrand Solubility Parameter | (cal/cm ³) ^{1/2} | - | 10 |
| Hydrogen Bonding Index | - | - | 12.5 |
| Fractional Polarity | - | - | 0.695 |
| Heat of Vaporization @Tboil | kJ/kg | - | 525 |
| Heat of Combustion (Net) @25°C | kJ/kg | - | 29000 |
| Specific Heat @20°C | kJ/kg/°C | - | 2.16 |
| Thermal Conductivity @20°C | W/m/°C | - | 0.16 |
| Miscibility @20°C: Solvent in Water | % m/m | - | Complete |
| Miscibility @20°C: Water in Solvent | % m/m | - | Complete |
| Azeotrope with Water: Boiling Point | °C | - | Non-azeotropic |
| Azeotrope with Water: Solvent Content | % m/m | - | Non-azeotropic |
| Molecular Weight | g/mol | - | 58 |

(#) In the Antoine temperature range, the vapor pressure P (kPa) at temperature T (°C) can be calculated by means of the Antoine equation: $\log P = A - B/(T+C)$

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| Test Methods | <p>Copies of copyrighted test methods can be obtained from the issuing organisations:</p> <p>American Society for Testing and Materials (ASTM) : www.astm.org Energy Institute (IP) : www.energyinst.org.uk</p> <p>For routine quality control analyses, local test methods may be applied that are different from those mentioned in this datasheet. Such methods have been validated and can be obtained through your local Shell Chemicals company.</p> |
| Storage and Handling | <p>Provided proper storage and handling precautions are taken we would expect Acetone to be technically stable for at least 12 months. For detailed advice on Storage and Handling please refer to the Material Safety Data Sheet on www.shell.com/chemicals.</p> |
| Hazard Information | <p>For detailed Hazard Information please refer to the Material Safety Data Sheet on www.shell.com/chemicals.</p> |
| Contact | <p>For further information, please visit our website at www.shell.com/chemicals, contact your local Shell representative, or call the 'Shell Chemicals' order center at 1 866 89 SHELL (1 866 897 4355).</p> |
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