

Product Stewardship Summary

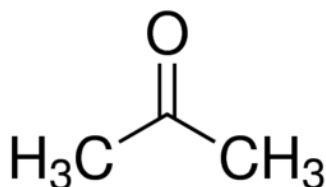
Propanone

General Statement

Propanone is a solvent commonly used in cleaning applications, as well as a starting material used in the synthesis of other chemical entities and component of many industrial products. Propanone is a low hazard material, however effort should be made through the use of controls and Personal Protective Equipment to minimize consumer exposure.

Chemical Identity

Name:	Propanone; Acetone; Dimethyl ketone
Brand Name:	Not applicable
Chemical name (IUPAC):	Propan-2-one
CAS number(s):	67-64-1
EC number:	200-662-2
Molecular formula:	C ₃ H ₆ O
Structure:	



Uses and Applications

Propanone is used in the manufacture of anti-freeze products, coatings, lubricants and greases, fillers, putties, plasters, modelling clay, finger paints, adhesives and sealants, air care products, non-metal-surface treatment products, polishes and waxes, polymers and welding & soldering products. Propanone is also used as a solvent for cleaning and degreasing purposes. Ashland uses Propanone as a starting material in its resins and coatings product lines.



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Physical/Chemical Properties

Property	Value
Form	Substance
Physical state	Liquid
Color	Colorless
Odor	Pungent, irritating, aromatic
Density	0.78998 g/cm ³ @ 20°C
Melting / boiling point	-95.35°C / 56.2°C
Flammability	Lower: 2.15%; Upper: 13.0% in air @ 25°C
Explosive properties	Lower: 2.6%; Upper: 12.8% in air @ 25°C
Self-ignition temperature	465°C
Vapor pressure	181.72 mmHg @ 20°C
Molecular weight	58.08 g/mol
Water solubility	Completely miscible in water @ 20°C
Flash point	-20°C
Octanol-water partition coefficient (LogP _{ow})	-0.24

Exposure, Hazard and Safety Assessment

The following section describes possible exposures scenarios and hazards associated with propanone. The exposure assessment describes both the amount of and the frequency with which a chemical substance reaches a person, a population of people, or the environment. Hazard refers to the inherent properties of a substance that make it capable of causing harm to human health or the environment. The safety assessment reports the possibility of a harmful event arising from exposure to a chemical or physical agent under specific conditions. Just because a substance may possess potentially harmful properties does not mean that it automatically poses a risk. It is not possible to make that determination without understanding the exposure.

Human Health Effects

Human Exposure Assessment

Consumer: Propanone is used as a cleaner and degreaser, as well as a solvent in nail polish remover, cement, lacquers, and finishes. Consumers often come into contact with propanone through the use of these common household products and construction and project materials. Professionals in the nail salon and construction industry may be exposed to propanone at higher amounts and/or at a greater frequency.

Worker: Propanone is used as starting material in the synthesis of other chemicals and a starting material for the manufacture of industrial adhesives and coatings. In the industrial setting, propanone is manufactured and handled in closed processes as much as possible, which ensures that worker exposure is minimized. The proper controls and use of personal protective equipment during loading, unloading, sampling or during maintenance operations, will further minimize potential exposures to propanone.

Human Hazard Assessment

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Propanone is minimally toxic via ingestion, inhalation and dermal exposure. Inhalation of excess amounts of propanone may cause adverse effects on the Central Nervous System (CNS), including headache, dizziness, slurred speech, lethargy, and lack of coordination.
Irritation / corrosion Skin / eye / respiratory tract	Propanone in liquid form can cause skin irritation. Propanone vapors can cause eye and respiratory tract irritation
Sensitization	Based on available data, propanone is not expected to be a skin sensitizer
Toxicity after repeated exposure Oral / inhalation / dermal	Long term exposure to propanone in animals has shown adverse effects in the kidney, liver, increased birth defects, and lowered reproductive ability in males. The relevance of these effects in humans is unknown.
Genotoxicity / Mutagenicity	Based on available data, propanone is not expected to be mutagenic or genotoxic
Carcinogenicity	Based on available data, propanone is not expected to be carcinogenic
Toxicity for reproduction	Exposure to propanone in animals has shown increased birth defects and lowered reproductive ability in males. The relevance of these effects in humans is unknown.

Human Health Safety Assessment

Consumer: Despite a low hazard profile, caution must be observed when handling propanone due to the potential for human contact in the home and professional setting. Appropriate gloves and a mask should be worn when prolonged exposure is expected to minimize risk of skin and CNS effects.

Worker: In the industrial setting, propanone is manufactured and handled in closed processes as much as possible, which ensures that worker exposure is minimized. Good manufacturing processes and industrial hygiene practices will ensure the risk to workers is low.

Environmental Effects

Environmental Exposure

Propanone is readily biodegradable and has low potential for bioaccumulation. Propanone is mobile in the aquatic environment and if released into water is not expected to adsorb to suspended solids and sediment. It is very soluble in water and if accidentally released to soil or water, some volatilization to the atmosphere can be anticipated.

Environmental Hazard Assessment

Effect Assessment	Result
Aquatic Toxicity	Minimally toxic to aquatic life

Fate and behavior	
Biodegradation	Readily biodegradable
Bioaccumulation potential	No bioaccumulation expected (LogP _{ow} = -0.24)
PBT / vPvB conclusion	Not considered to be PBT or vPvB

Environmental Safety Assessment

Propanone has low aquatic toxicity. If a release into the aquatic environment does occur, propanone is anticipated to have a minimal effect as it has low toxicity to aquatic organisms, is readily degraded, has low potential for bioaccumulation.

Risk Management Recommendations

Exposure to propanone can be controlled by sufficient ventilation, proper handling and storage techniques, and the use of appropriate personal protective equipment as recommended in the SDS.

Occupational exposure limits include, but are not limited to, the following:

- ACGIH TLV (TWA) 500 ppm
- ACGIH TLV (STEL) 750 ppm
- NIOSH REL (TWA) 250 ppm
- NIOSH IDLH 2500 ppm
- OSHA PEL (TWA) 1000 ppm

Regulatory Agency Review

Propanone is included on the following lists:

ACGIH - Threshold Limit Values (TLVs)
Alberta - Occupational Exposure Limits (OELs)
Argentina - Occupational Exposure Limits (OELs)
Arizona DOSH - Exposure Limits for Air Contaminants - Table Z-1
ATSDR - CERCLA Priority List of Hazardous Substances (2015)
ATSDR - Minimal Risk Levels (MRLs) for Hazardous Substances
Australia - National Pollutant Inventory (NPI) - Volatile Organic Compounds
Australia - Workplace Exposure Standards
Australian Inventory of Chemical Substances (AICS)
Austria - Occupational Exposure Limits (OELs)
Belgium - Occupational Exposure Limits (OELs)
British Columbia - Occupational Exposure Limits (OELs)
Bulgaria - Occupational Exposure Limits (OELs)
Cal/EPA - Proposition 65
Cal/EPA - Safer Consumer Products Regulation - Candidate Chemicals and Chemical Groups
Cal/OSHA - Permissible Exposure Limits for Chemical Contaminants
California Safe Cosmetics Act
China - Chemical Inventory of Existing Chemical Substances (IECSC) - CAS Numbers
Colombia - Occupational Exposure Limits (OELs)
Connecticut OSHA - Exposure Limits for Air Contaminants - Table Z-1
DEA - Chemical Diversion and Trafficking Act - List I and II Regulated Chemicals

Denmark - Occupational Exposure Limits (OELs)
DOE Protective Action Criteria (PAC)
Environment Canada - Chemical Management Plan - Status of Prioritized Substances
EPA - 40 CFR Part 51.100
EPA - CERCLA - Hazardous Substances and their Reportable Quantities (RQs)
EPA - Clean Air Act - Section 111 - Standards of Performance for New Stationary Sources of Air Pollutants
EPA - Clean Water Act - Section 304B - Effluent Limitation Guidelines
EPA - Endocrine Disruptor Screening Program (EDSP) - Final List of Chemicals
EPA - Inert Ingredients Permitted for Use In Nonfood Pesticide Products
EPA - IRIS - Inhalation Reference Concentrations (RfCs)
EPA - IRIS - Oral Reference Doses (RfDs)
EPA - Marine Screening Benchmarks
EPA - Office of Pollution Prevention and Toxics (OPPT) High Production Volume (HPV) Program - 1990
EPA - SARA - Section 110 - Priority List of Hazardous Substances
EPA - SOM01.2 Volatile Target Compound List and Corresponding CRQLs
EU - Approved Flavouring Substances
EU - Cosmetic Ingredients and Fragrance Inventory
EU - Indicative Occupational Exposure Limits (Consolidated List)
EU - Indicative Occupational Exposure Limits (Directive 2000/39/EC)
Finland - Occupational Exposure Limits (OELs)
France - Occupational Exposure Limits (OELs)
Germany - Occupational Exposure Limits (OELs)
Hawaii - Department of Labor and Industrial Relations - Air Contaminants - Permissible Exposure Limits
Hawaii - State Department of Health - Reportable Quantities
Health Canada - Revised In-Commerce List of Food and Drugs Act Substances
Hungary - Occupational Exposure Limits (OELs)
IARC- Group 1
Iceland - Occupational Exposure Limits (OELs)
Indiana OSHA - Exposure Limits for Air Contaminants - Table Z-1
Iowa OSHA - Exposure Limits for Air Contaminants - Table Z-1
Japan - Occupational Exposure Limits (OELs)
Jordan - Occupational Exposure Limits (OELs)
Korea - Occupational Exposure Limits (OELs)
Maryland OSH - Exposure Limits for Air Contaminants - Table Z-1
Massachusetts Department of Public Health - Massachusetts Substance List (MSL)
Massachusetts Toxics Use Reduction Act (TURA)
Mexico - National Inventory of Chemical Substances
Mexico - Occupational Exposure Limits (OELs)
Michigan - Exposure Limits for Air Contaminants - Table G-1-A
Mine Safety and Health Administration (MSHA) - Permissible Exposure Limits (PELs)
Minnesota - Department of Labor and Industry - Air Contaminants - Permissible Exposure Limits
Minnesota - List of Hazardous Substances
Minnesota Department of Health - Health-Based Guidance Review History
Minnesota Department of Health - Human Health-Based Water Guidance Table
National Cancer Institute - SMILES Notations
Nevada OSHA - Exposure Limits for Air Contaminants - Table Z-1
New Jersey - Right to Know List
New Mexico OHSB - Exposure Limits for Air Contaminants - Table Z-1
New Zealand - Biological Exposure Indices (BEIs)
New Zealand - Inventory of Chemicals (NZIoC)
New Zealand - Workplace Exposure Standards
NIOSH - Immediately Dangerous to Life or Health (IDLH) Concentration Values
NIOSH - Recommended Exposure Limits (RELs)
Norway - Occupational Exposure Limits (OELs)
Ontario - Current Occupational Exposure Limits (OELs)
Pennsylvania - Hazardous Substance List
People's Republic of China - Second Category of Chemicals Subject to the Environmental Management on the First Import of Chemicals

Peru - Occupational Exposure Limits (OELs)
Philippine Inventory of Chemicals and Chemical Substances (PICCS)
Poland - Occupational Exposure Limits (OELs)
Puerto Rico OSHA - Exposure Limits for Air Contaminants - Table Z-1
Rhode Island - Hazardous Substance List
Russia - Occupational Exposure Limits (OELs)
Singapore - Occupational Exposure Limits (OELs)
South Carolina OSH - Exposure Limits for Air Contaminants - Table Z-1
Sweden - Occupational Exposure Limits (OELs)
Switzerland - Occupational Exposure Limits (OELs)
Technischen Regeln für Gefahrstoffe (TRGS) - TRGS900
TEDX List of Potential Endocrine Disruptors
Tennessee OSHA - Exposure Limits for Air Contaminants - Table Z-1
The Netherlands - Occupational Exposure Limits (OELs)
The Philippines - Occupational Exposure Limits (OELs)
Turkey - First List of Priority Substances
Turkey - Occupational Exposure Limits (OELs)
United Kingdom - Occupational Exposure Limits (OELs)
United Kingdom - Workplace Exposure Limits (WELs) - 2011
USGS - Health-Based Screening Levels (HBSLs)
Utah OSH - Exposure Limits for Air Contaminants - Table Z-1
Vermont - Department of Labor - Air Contaminants - Permissible Exposure Limits
Vietnam - Occupational Exposure Limits (OELs)
Virgin Islands DOSH - Exposure Limits for Air Contaminants - Table Z-1
Virginia OSH - Exposure Limits for Air Contaminants - Table Z-1
Washington State - Discarded Chemical Products List
Washington State - Permissible Exposure Limits (PELs) for Airborne Contaminants
Wyoming OSHA - Exposure Limits for Air Contaminants - Table Z-1

Regulatory Information / Classification and Labeling

Under the Globally Harmonized System for classification and labeling (GHS), substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the (Extended) SDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use.

GHS Classification:

Flammable Liquid, Category 2
Eye Irritant, Category 2
STOT Single Exposure, Category 3

Hazard Statements:

H225: Highly flammable liquid and vapor.
H319: Causes serious eye irritation.
H336: May cause drowsiness or dizziness.

Signal Word: DANGER

Precautionary Statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P261: Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280: Wear protective gloves/ eye protection/ face protection.

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Hazard Pictograms:



Conclusion

Propanone is used in numerous cleaning, industrial, and chemical synthesis applications. When handled responsibly, the potential for irritant and CNS effects can be minimized, allowing consumers and workers to use propanone, and materials containing propanone, safely.

Contact Information with Company

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Additional Information

For more information on GHS, visit <http://www.osha.gov/dsg/hazcom/ghsguideoct05.pdf> or http://live.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html.

Ashland product stewardship summaries are located at <http://www.ashland.com/stewardship>

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REACH registration is specific to Importers/Manufacturers that place the chemical on the EU market, and specific to registered uses. Inclusion on the list of REACH Registered Substances does not automatically imply registration by Ashland.

Inclusion on the New Zealand Inventory of Chemicals applies only to the pure substance listed. The importer of record must determine whether or not their substances are in compliance.