



SAFETY DATA SHEET

DOW CHEMICAL COMPANY LIMITED

Safety Data Sheet according to REACH Regulation (EC) No 1907/2006, as retained and amended in UK law

Product name: DOWSIL™ R-40 Universal Cleaner

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DOW CHEMICAL COMPANY LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name: DOWSIL™ R-40 Universal Cleaner

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

Identified uses: Cleaning/washing agents and additives

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

DOW CHEMICAL COMPANY LIMITED
5 OAKWATER AVENUE
CHEADLE ROYAL BUSINESS PARK
CHEADLE
SK8 3SR
UNITED KINGDOM

Customer Information Number:

+44 (0) 1663 746518

SDSQuestion@dow.com

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+44 (0) 1663 746605

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 0031 115 694 982

Local Emergency Contact: 00 31 115 69 4982

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008, as retained and amended in UK law

Flammable liquids - Category 2 - H225

Eye irritation - Category 2 - H319

Specific target organ toxicity - single exposure - Category 3 - H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008, as retained and amended in UK law

Hazard pictograms



Signal word: **DANGER**

Hazard statements

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

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 spray.
 P261 Avoid breathing mist or vapours.
 P271 Use only outdoors or in a well-ventilated area.
 P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

Supplemental information

EUH066 Repeated exposure may cause skin dryness or cracking.

Contains Isopropanol; acetone

2.3 Other hazards

Static-accumulating flammable liquid.

This product contains no substances assessed to be PBT or vPvB at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: organic solvent

3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	UK REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008, as retained and amended in UK law

CASRN 67-63-0 EC-No. 200-661-7 Index-No. 603-117-00-0	—	>= 70.0 - < 80.0 %	Isopropanol	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336 (Central nervous system) Acute toxicity estimate Acute oral toxicity: 5,840 mg/kg Acute inhalation toxicity: > 10000 ppm, 6 Hour, vapour Acute dermal toxicity: > 12,800 mg/kg
CASRN 67-64-1 EC-No. 200-662-2 Index-No. 606-001-00-8	—	>= 20.0 - < 30.0 %	acetone	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336 (Central nervous system) EUH066 Acute toxicity estimate Acute oral toxicity: 5,800 mg/kg Acute inhalation toxicity: 76 mg/l, 4 Hour, vapour Acute dermal toxicity: > 20,000 mg/kg > 7,400 mg/kg

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Wash off with plenty of water.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

4.2 Most important symptoms and effects, both acute and delayed:

Causes serious eye irritation. May cause drowsiness or dizziness. Repeated exposure may cause skin dryness or cracking.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. Hemodialysis may be of benefit if substantial amounts have been ingested and the patient is showing signs of intoxication. Consider hemodialysis for patients with persistent hypotension or coma unresponsive to standard therapy (isopropanol levels >400 - 500 mg/dl). (Goldfrank, Toxicological Emergencies 7th ed., 2002; King, JAMA, 1970, 211:1855). No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam. Dry chemical. Dry sand.

Unsuitable extinguishing media: High volume water jet. Do not use direct water stream..

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon oxides.

Unusual Fire and Explosion Hazards: Flash back possible over considerable distance.. Exposure to combustion products may be a hazard to health.. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.. Flammable mixtures may exist within the vapor space of containers at room temperature.. Closed containers may rupture via pressure build-up when exposed to fire or extreme heat.. Vapours may form explosive mixtures with air..

5.3 Advice for firefighters

Fire Fighting Procedures: Use water spray to cool unopened containers.. Evacuate area.. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.. Do not use a solid water stream as it may scatter and spread fire..

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Remove undamaged containers from fire area if it is safe to do so.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.. Use personal protective equipment..

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Remove all sources of ignition. Ventilate the area. Use personal protective equipment. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Vapor explosion hazard. Keep out of sewers. Follow safe handling advice and personal protective equipment recommendations.

6.2 Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up: Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. Clean up remaining materials from spill with suitable absorbant. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.

6.4 Reference to other sections:

See sections: 7, 8, 11, 12 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Do not get on skin or clothing. Do not breathe vapours or spray mist. Do not swallow. Do not get in eyes. Keep container tightly closed. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to the environment. Non-sparking tools should be used. Handle in accordance with good industrial hygiene and safety practice. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied.

Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation. Ensure all equipment is electrically grounded before beginning transfer operations. This material can accumulate static charge due to its inherent physical properties and can therefore cause an electrical ignition source to vapors. In order to prevent a fire hazard, as bonding and grounding may be insufficient to remove static electricity, it is necessary to provide an inert gas purge before beginning transfer operations. Restrict flow velocity in order to reduce the accumulation of static electricity. Ground and bond container and receiving equipment.

7.2 Conditions for safe storage, including any incompatibilities: Keep in properly labelled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition.

Do not store with the following product types: Strong oxidizing agents. Organic peroxides. Flammable solids. Pyrophoric liquids. Pyrophoric solids. Self-heating substances and mixtures. Substances and mixtures, which in contact with water, emit flammable gases. Explosives. Gases. Unsuitable materials for containers: None known.

7.3 Specific end use(s): See the technical data sheet on this product for further information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
Isopropanol	ACGIH	TWA	200 ppm
	Further information: A4: Not classifiable as a human carcinogen		
	ACGIH	STEL	400 ppm
acetone	Further information: A4: Not classifiable as a human carcinogen		
	GB EH40	TWA	999 mg/m3 400 ppm
	GB EH40	STEL	1,250 mg/m3 500 ppm
	ACGIH	TWA	250 ppm
	Further information: A4: Not classifiable as a human carcinogen		
	ACGIH	STEL	500 ppm
	Further information: A4: Not classifiable as a human carcinogen		
	Dow IHG	TWA	200 ppm
	Dow IHG	STEL	350 ppm
	GB EH40	TWA	1,210 mg/m3 500 ppm
	GB EH40	STEL	3,620 mg/m3 1,500 ppm

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Isopropanol	67-63-0	Acetone	Urine	End of shift at end of workweek	40 mg/l	ACGIH BEI
acetone	67-64-1	Acetone	Urine	End of shift (As soon as possible after exposure ceases)	25 mg/l	ACGIH BEI

Recommended monitoring procedures

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with the Occupational Exposure Limits and the adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples should be analysed by an accredited laboratory.

Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy); European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents); European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents). Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods.

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods.

Health and Safety Executive (HSE), United Kingdom: Methods for the Determination of Hazardous Substances.

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany.

L'Institut National de Recherche et de Sécurité, (INRS), France.

Derived No Effect Level

Isopropanol

Workers

<i>Acute systemic effects</i>		<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	1000 mg/m ³	5.9 mg/cm ²	n.a.	888 mg/kg bw/day	500 mg/m ³	0.446 mg/cm ²	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	178 mg/m ³	51 mg/kg bw/day	3.550 mg/cm ²	n.a.	319 mg/kg bw/day	89 mg/m ³	26 mg/kg bw/day	0.267 mg/cm ²	n.a.

acetone

Workers

<i>Acute systemic effects</i>		<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	2420 mg/m ³ 2420 mg/m ³ 0 mg/m ³	186 mg/kg bw/day 18 mg/kg bw/day	1210 mg/m ³ 1210 mg/m ³ 0 mg/m ³	n.a.	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	62 mg/kg bw/day 6 mg/kg bw/day	200 mg/m ³ 20 mg/m ³	62 mg/kg bw/day 6 mg/kg bw/day	n.a.	n.a.

Predicted No Effect Concentration

Isopropanol

Compartment	PNEC
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acetone

Compartment	PNEC
Fresh water	10.6 mg/l
Marine water	1.06 mg/l
Intermittent use/release	21 mg/l
Sewage treatment plant	100 mg/l
Fresh water sediment	30.4 mg/kg
Marine sediment	3.04 mg/kg
Soil	29.5 mg/kg

8.2 Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent. If exposure causes eye discomfort, use a full-face respirator (meeting standard EN 136) with organic vapor cartridge (meeting standard EN 14387).

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Avoid gloves made of: Viton. When prolonged or frequently repeated contact may occur, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

Respiratory protection: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved air-purifying or positive-

pressure supplied-air respirator depending on the potential airborne concentration. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2 (meeting standard EN 14387).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid
Color	colourless
Odor	solvent-like
Odor Threshold	No data available
pH	Not applicable, substance/mixture is non-polar/aprotic
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	75 °C
Flash point	Tag closed cup -18 °C
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	0.79
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	2 mPa.s
Kinematic Viscosity	No data available
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other information

Liquid Density	0.79 g/cm ³
Molecular weight	No data available
Particle size	Not applicable

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Not classified as a reactivity hazard.

10.2 Chemical stability: Stable under normal conditions.

10.3 Possibility of hazardous reactions: Can react with strong oxidizing agents. Vapours may form explosive mixture with air. Highly flammable liquid and vapour.

10.4 Conditions to avoid: Avoid static discharge. Heat, flames and sparks.

10.5 Incompatible materials: Avoid contact with oxidizing materials.

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

11.1 Information on toxicological effects

Information on likely routes of exposure

Inhalation, Eye contact, Skin contact, Ingestion.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

Acute Toxicity Endpoints:

Acute oral toxicity

Information for the Product:

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. May cause central nervous system depression. Signs and symptoms of excessive exposure may include: Facial flushing. Low blood pressure. Irregular heartbeats. May cause nausea and vomiting.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, Rat, > 5,000 mg/kg Estimated.

Information for components:

Isopropanol

May cause central nervous system depression. Signs and symptoms of excessive exposure may include: Facial flushing. Low blood pressure. Irregular heartbeats. May cause nausea and vomiting.

LD50, Rat, 5,840 mg/kg OECD 401 or equivalent

acetone

LD50, Rat, 5,800 mg/kg

Acute dermal toxicity**Information for the Product:**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, Rabbit, > 2,000 mg/kg Estimated.

Information for components:**Isopropanol**

LD50, Rabbit, > 12,800 mg/kg

acetone

LD50, Rabbit, > 20,000 mg/kg

LD50, Guinea pig, > 7,400 mg/kg

Acute inhalation toxicity**Information for the Product:**

Prolonged excessive exposure may cause adverse effects. With good ventilation, single exposure is not likely to be hazardous. In poorly ventilated areas, vapors or mists may accumulate and cause respiratory irritation. May cause central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. In humans, symptoms may include: Nausea and/or vomiting. Observations in animals include middle ear lining damage upon exposure to vapors of isopropanol. However, the relevance of this to humans is unknown. Excessive exposure (400 ppm) to isopropanol may cause eye, nose and throat irritation. Incoordination, confusion, hypotension, hypothermia, circulatory collapse, respiratory arrest and death may follow a longer duration or higher levels.

As product: The LC50 has not been determined.

Information for components:**Isopropanol**

LC50, Rat, male and female, 6 Hour, vapour, > 10000 ppm

acetone

LC50, Rat, 4 Hour, vapour, 76 mg/l

Skin corrosion/irritation

Repeated exposure may cause skin dryness or cracking.

Information for the Product:

Based on information for component(s):
Prolonged exposure not likely to cause significant skin irritation.
May cause drying and flaking of the skin.

Information for components:

Isopropanol

Prolonged exposure not likely to cause significant skin irritation.

acetone

Essentially nonirritating to skin.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation

Causes serious eye irritation.

Information for the Product:

Based on information for component(s):
May cause moderate eye irritation.
May cause corneal injury.
Effects may be slow to heal.
May cause pain disproportionate to the level of irritation to eye tissues.
Vapor may cause lacrimation (tears).
Vapor may cause eye irritation experienced as mild discomfort and redness.

Information for components:

Isopropanol

May cause pain disproportionate to the level of irritation to eye tissues.
May cause moderate eye irritation.
May cause moderate corneal injury.
Vapor may cause eye irritation experienced as mild discomfort and redness.
Vapor may cause lacrimation (tears).

acetone

May cause severe eye irritation.
May cause slight corneal injury.
Effects may be slow to heal.
Vapor may cause eye irritation experienced as mild discomfort and redness.

Sensitization

Information for the Product:

For skin sensitization:
Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:
No relevant data found.

Information for components:

Isopropanol

For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

acetone

For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause drowsiness or dizziness.

Information for the Product:

Product test data not available.

Information for components:

Isopropanol

May cause drowsiness or dizziness.
Route of Exposure: Ingestion
Target Organs: Central nervous system

acetone

May cause drowsiness or dizziness.
Route of Exposure: Inhalation
Target Organs: Nervous system

Aspiration Hazard

Information for the Product:

Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

Information for components:

Isopropanol

Aspiration into the lungs may occur during ingestion or vomiting, resulting in rapid absorption and injury to other body systems.

acetone

May be harmful if swallowed and enters airways.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Information for the Product:

Product test data not available.

Information for components:

Isopropanol

In animals, effects have been reported on the following organs:

Kidney.

Liver.

Kidney effects have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

Observations in animals include:

Lethargy.

acetone

In animals, effects have been reported on the following organs:

Blood.

Kidney.

Liver.

Development of cataracts has been reported in laboratory animals after prolonged repeated skin exposure to acetone.

Carcinogenicity

Information for the Product:

Product test data not available.

Information for components:

Isopropanol

Did not cause cancer in laboratory animals.

acetone

No relevant data found.

Teratogenicity

Information for the Product:

Product test data not available.

Information for components:

Isopropanol

Isopropanol has been toxic to the fetus in laboratory animals at doses toxic to the mother.

acetone

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive toxicity

Information for the Product:

Product test data not available.

Information for components:

Isopropanol

In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

acetone

In animal studies, did not interfere with reproduction.

Mutagenicity

Information for the Product:

Product test data not available.

Information for components:

Isopropanol

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

acetone

In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were negative.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

12.1 Toxicity

Isopropanol

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 9,640 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, Daphnia magna (Water flea), static test, 24 Hour, > 10,000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

NOEC, alga Scenedesmus sp., static test, 7 d, Growth inhibition (cell density reduction), 1,800 mg/l

ErC50, alga Scenedesmus sp., static test, 72 Hour, Growth rate inhibition, > 1,000 mg/l

Toxicity to bacteria

EC50, activated sludge, > 1,000 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, 30 mg/l

acetone

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 5,500 - 6,100 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, Daphnia pulex (Water flea), 48 Hour, 8,800 mg/l

LC50, Artemia salina (brine shrimp), 24 Hour, 2,100 mg/l

Acute toxicity to algae/aquatic plants

EC50, Skeletonema costatum (marine diatom), 5 d, Biomass, 11,800 - 14,400 mg/l

NOEC, Microcystis aeruginosa (blue-green algae), 8 d, Biomass, 530 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), 28 d, number of offspring, 1,106 - 2,212 mg/l

12.2 Persistence and degradability

Isopropanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 95 %
Exposure time: 21 d
Method: OECD Test Guideline 301E or Equivalent
10-day Window: Not applicable
Biodegradation: 53 %
Exposure time: 5 d
Method: Other guidelines

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	20 - 72 %

acetone

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 91 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent

12.3 Bioaccumulative potential

Isopropanol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.05 Measured

acetone

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.24 Measured
Bioconcentration factor (BCF): 0.69 Fish Measured

12.4 Mobility in soil

Isopropanol

Partition coefficient (Koc): 1.1 Estimated.

acetone

Partition coefficient (Koc): 0.37 - 2.0 Estimated.

12.5 Results of PBT and vPvB assessment

Isopropanol

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

acetone

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.6 Other adverse effects

Isopropanol

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

acetone

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Do not dump into any sewers, on the ground, or into any body of water. This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

SECTION 14: TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

- | | |
|--|---|
| 14.1 UN number or ID number | UN 1993 |
| 14.2 UN proper shipping name | FLAMMABLE LIQUID, N.O.S.(Propan-2-ol, Acetone) |
| 14.3 Transport hazard class(es) | 3 |
| 14.4 Packing group | II |
| 14.5 Environmental hazards | Not considered environmentally hazardous based on available data. |
| 14.6 Special precautions for user | Special Provision 640D
Hazard Identification Number: 33 |

Classification for INLAND waterways (ADNR/ADN):

Consult your Dow contact before transporting by inland waterway

Classification for SEA transport (IMO-IMDG):

- | | |
|---|--|
| 14.1 UN number or ID number | UN 1993 |
| 14.2 UN proper shipping name | FLAMMABLE LIQUID, N.O.S.(Propan-2-ol, Acetone) |
| 14.3 Transport hazard class(es) | 3 |
| 14.4 Packing group | II |
| 14.5 Environmental hazards | Not considered as marine pollutant based on available data. |
| 14.6 Special precautions for user | EmS: F-E, S-E |
| 14.7 Maritime transport in bulk according to IMO instruments | Consult IMO regulations before transporting ocean bulk instruments |

Classification for AIR transport (IATA/ICAO):

14.1 UN number or ID number	UN 1993
14.2 UN proper shipping name	Flammable liquid, n.o.s.(Propan-2-ol, Acetone)
14.3 Transport hazard class(es)	3
14.4 Packing group	II
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	No data available.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**UK REACH - UK Statutory Instruments 2019 No.758 as amended**

This product contains only components that have been either registered, notified for downstream user import (DUIN), are exempt from registration, are regarded as registered or are not subject to registration according to UK Statutory Instruments 2019 No.758 as amended (UK REACH). The aforementioned indications of the UK REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, expressed or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

UK REACH List of restrictions (Annex 17)

Conditions of restriction for the following entries should be considered:
Number on list 3

Control of Major Accident Hazards Regulations 2015 (COMAH)

Listed in Regulation: FLAMMABLE LIQUIDS

Number in Regulation: P5c

5,000 t

50,000 t

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

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

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008

Flam. Liq. - 2 - H225 - Based on product data or assessment

Eye Irrit. - 2 - H319 - Calculation method

STOT SE - 3 - H336 - Calculation method

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
Dow IHG	Dow Industrial Hygiene Guideline
GB EH40	UK. EH40 WEL - Workplace Exposure Limits
STEL	Short term exposure limit
TWA	Time weighted average
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
STOT SE	Specific target organ toxicity - single exposure

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL -

No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW CHEMICAL COMPANY LIMITED urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

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