



Choline Chloride 70%

Safety Data Sheet

According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

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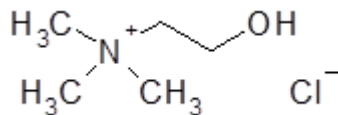
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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND OF THE COMPANY/ UNDERTAKING

1.1. Identification

PRODUCT NAME : Choline Chloride 70%
CAS RN : 67-48-1 (Choline chloride)
SYNONYMS : (2-Hydroxyethyl) Trimethylammonium Chloride; Choline Chloride
STRUCTURAL FORMULA :



(Choline Chloride)

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

1.2.1. Relevant identified uses

An important additive in feed especially for chickens

Uses advised against: None

1.3. Details of the supplier of the safety data sheet

Jubilant Ingrevia Limited

FACTORY OFFICE: Jubilant Ingrevia Limited, Block 133, Village Samlaya Taluka, District - Vadodara, Savli-391520, Gujarat, India
Tel: +91-2667-251281, 251306

HEAD OFFICE: Jubilant Ingrevia Limited., Plot 1-A, Sector 16-A, Institutional Area, Noida, Uttar Pradesh, 201301 – India
T +91-120-4361000 - F +91-120-4234881 / 84 / 85 / 87 / 95 / 96 support@jubl.com - www.jubilantingrevia.com

1.4. Emergency telephone number

For Chemical Emergency ONLY (in the case of fire, leak, spill, exposure or accident) Call

Chemtrec: 1-800-424-9300 (US), 1-703-527-3887 (Outside U.S.)

Chemtrec (India) : 000-800-100-7141

SECTION 2: HAZARD(S) IDENTIFICATION

2.1. Classification of the substance or mixture

GHS-US classification

No need for classification according to GHS criteria for this product.

2.2. Label Elements

Hazard Pictogram: None

Signal Word: None

HAZARD AND PRECAUTIONARY STATEMENTS:

HAZARD STATEMENTS

No hazard statements

PRECAUTIONARY STATEMENTS

No precautionary statements.

SECTION 3: COMPOSITION/ INFORMATION ON INGREDIENTS

Chemical	CAS #	EC Number	% Composition	GHS-US classification
Choline chloride	67-48-1	200-655-4	NLT 70% w/w	Non-Hazardous

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures



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- Remove affected person from danger area. Do not leave affected persons unsupervised. Seek medical treatment. First aid personnel should pay attention to their own safety.
- **Eyes:** If in eyes rinse cautiously with water for at least 15 minutes. Remove contact lenses if easy to do so. Continue rinsing. Seek medical attention.
- **Skin:** Immediately take off all contaminated clothing. Wash thoroughly with water for at least 15 minutes. Wash contaminated clothes before reuse. Seek immediate medical attention.
- **Inhalation:** Remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if you feel unwell.
- **Ingestion:** If swallowed call a poison center if you feel unwell. Rinse mouth. Do NOT induce vomiting by use of emetics. Seek medical attention.

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

Acute Toxicity

- No data available

Chronic Toxicity

- Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

4.3. Indication of any immediate medical attention and special treatment needed

- No data available

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

- Dry chemical powder, carbon dioxide, and alcohol resistant foam. Water may also be used. Water sprays can be effective in cooling down the fire-exposed containers and knocking down the vapors. Water jets may be used to flush spills away and dilute the same to non-flammable mixtures.

5.2. Special hazards arising from the substance or mixture

- When heated to decomposition it may emit toxic vapors of nitrogen oxides, carbon monoxide and carbon dioxide.

5.3. Advice for firefighters

- Wear self-contained breathing apparatus for firefighting if necessary.

5.4. Further information

- No data available

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

- Stop Spill if possible.
- Spill should be handled by trained cleaning personnel properly equipped with respiratory and eye protection.
- Avoid breathing vapors, mist or gas.
- Avoid contact with skin and eyes.
- Wear protective clothing, boots, impervious gloves and safety glasses.
- Alert Emergency Responders and tell them location and nature of hazard.

6.2. Environmental precautions

- Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release.
- Prevent, by any means available, spillage from entering drains or water and watercourses.
- Collect recoverable product into labeled containers for recycling, recovery or disposal.

6.3. Methods and materials for containment and cleaning up

- Wipe up spillage or collect spillage using a high-efficiency vacuum cleaner. Avoid breathing vapor.
- Place spillage in appropriately labeled container for disposal. Wash spill site.
- Contain spill with sand, earth or vermiculite.
- Spread area with lime or absorbent material, and leave for at least 1 hour before washing.
- Clean up all tools and equipment.
- Inform authorities in event of contamination of any public sewers, drains or water bodies.

6.4. Reference to other sections

- For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

- Handle in accordance with good industrial hygiene and safety procedures. Avoid Prolonged or repeated exposure. Take precautionary measures against electrostatic discharge.
- Material should be handled in a laboratory hood whenever against fire and explosion possible.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke



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7.2 Conditions for safe storage, including any incompatibilities

- Store at ambient temperature in a well-ventilated place.
- Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

- Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

- **Exposure Limits Values**

Chemical name	STEL (ppm)	NIOSH	ACGIH	OSHA
Choline chloride 70%	None available	None available	None available	None available

8.2 Exposure controls

Appropriate engineering controls

- General industrial hygiene practice.

Personal protective equipment

- **Hand Protection:** Wear suitable gloves resistant to chemical penetration
- **Eye Protection:** Chemical safety goggles
- **Body Protection:** Wear suitable protective clothing.
- **Respiratory protection:** Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Additional Information

- Only use protective equipment in accordance with national/international regulations. Follow the national regulation about wearing personal protective equipment and the warranty given.
- Exposure may occur during manufacture, transportation and industrial use. The likely primary routes of human exposure to choline chloride are skin contact and inhalation at the work place.
- Worker exposure is limited by enclosed systems, industrial hygiene controls and personal protective measures (protective gloves, safety glasses with side-shields, respiratory protection if ventilation is inadequate).

Control of environmental exposure

- Do not let product enter drains.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Sr.No.	Parameter	Typical value
1	Appearance	Transparent colorless liquid
2	Odor	Odorless
3	Odor Threshold	Not available
4	pH	6.0 to 8.0
5	Melting point	-18°C
6	Boiling point	Not applicable due to decomposition on heating
7	Flash point	Not available
8	Evaporation rate (n-BuAc=1)	Not available
9	Explosive limits	Not available
10	Vapor pressure	Only water vapor is present.
11	Solubility	Completely miscible in water
12	Partition coefficient octanol/ water (logKow)	-3.77 at 25°C (choline chloride)
13	Auto-ignition temperature	Not available
14	Viscosity	26 mPa*s @ 20°C
15	Molecular Weight	Not applicable
16	PKa (@25°C)	Not available
17	Relative density	1.08-1.09g/cm ³ at 20°C (choline chloride)
18	Flammable material	No
19	Corrosive material	No



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20	Explosive material	Material not tested as mist. Water content must first evaporate before dust formation occurs. Choline chloride for particles > 500 micron diameter and 2.3wt% moisture is classified as ST1 dust explosion and has a lower explosion limit of 125 g/m ³ , overpressure of 3.5 bar, Kst of 4 bar-m/s, a minimum ignition energy > 106 mJ and an ignition temperature of 430 °C. For particles < 63 µm, choline chloride is classified as ST1 dust explosion.
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9.2 Other safety information

- No data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

- No data available

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- Hazardous Polymerization:** Not hazardous reactions expected.

10.4 Conditions to avoid

- Do not heat to boiling or decomposition in sealed container

10.5 Incompatible materials

- Strong oxidizing agents, Strong acids, Strong bases.

10.6 Hazardous decomposition products

- Other decomposition products** - Thermal decomposition may produce nitrogen oxides, hydrogen chloride, carbon dioxide and carbon monoxide.
- In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

RTECS: KH2975000 (Choline Chloride)

LD 50: Not available

Acute toxicity: Choline chloride is of very low acute oral toxicity. The oral LD50 in rats was determined to be between 3150 and 5000 mg/kg bw (corrected to 100% choline chloride). The oral LD50 in mice was also in the range of 3900 to 6000 mg/kg bw in two studies of unknown reliability.

Type of Test:	LD50
Route of exposure:	Oral
Species observed:	Rat
Dose Data:	3400 mg(Choline chloride)/kg
Toxic effects:	<ul style="list-style-type: none">Sense Organs and Special Senses (Eye) chromodacryorrheaBehavioral - excitement Lungs, Thorax, or Respiration – respiratory depression
Reference:	PSEBAA Proceedings of the Society for Experimental Biology and Medicine. (Academic Press, Inc., 1 E. First St., Duluth, MN 55802) V.1- 1903/04- Volume(issue)/page/year: 58,87,1945

Skin corrosion/irritation : Not irritant, Slight redness occurs at prolonged contact with skin

Species:	Human
Route:	Skin
Dosage:	1 % (Choline chloride)
Severity:	Positive



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Vehicle:	Petrolatum
Test Type:	Patch
History:	Atopic history
Tissue:	Skin
Sensitization:	Yes
Positive Observations:	1
Total Observations:	1
Toxic Effects:	<ul style="list-style-type: none"> Cutaneous sensitization (experimental) after topical exposure of skin and appendages. Primary irritation after topical exposure of skin and appendages.
Reference:	Contact Dermatitis 10,316-317,1984 DOI: 10.1111/J.1600-0536.1984.TB00158.X

Serious eye damage/eye irritation : Non irritant
 Respiratory or skin sensitization : The sensitization potential of choline chloride is regarded as negligible.
 Germ cell mutagenicity : One or more in vitro tests on mammalian cells show positive mutation results for Choline chloride.

Type of test:	Cytogenetic Analysis	Sister Chromatid Exchange
Species Observed:	Rodent - Hamster Ovary	Rodent - Hamster Ovary
Dose Data:	500 µg(Choline chloride)/l	500 µg(Choline chloride)/l
Reference:	ENMUDM Environmental Mutagenesis. (New York, NY) V.1-9, 1979-87. For publisher information, see EMMUEG. Volume(issue)/page/year: 7,1,1985	ENMUDM Environmental Mutagenesis. (New York, NY) V.1-9, 1979-87. For publisher information, see EMMUEG. Volume(issue)/page/year: 7,1,1985

Carcinogenicity : No studies on carcinogenicity are available.
 Reproductive toxicity : Developmental toxic effects have not been observed in the absence of maternal toxicity. Maternal and developmental toxicity started above the lowest dose which was already higher than the limit dose of 1000 mg/kg bw/day (NOAEL Maternal toxicity and developmental toxicity 1250 mg/kg bw/day). At the highest dose tested (20,000 mg/kg bw/day) 100% of the fetuses were resorbed.
 Specific target organ toxicity - single exposure : No data available
 Specific target organ toxicity - repeated exposure : No data available
 Aspiration hazard : No data available

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Choline chloride	EC50: > 500 mg/L, 72h (Desmodesmus subspicatus)	LC50: > 10000 mg/L, 96h static (Leuciscus idus)	= 133 mg/L EC50 Pseudomonas putida 17 h	EC50: > 320 mg/L, 48h Static (Daphnia magna) EC50: > 500 mg/L, 48h (Daphnia magna Straus)

- Based on the values it is expected to be non toxic to fish and other aquatic organisms.

12.2 Persistence and degradability

- Choline chloride was shown to be readily biodegradable according to OECD-criteria (93 % biodegradation within 14 days) in a MITI I-Test (MITI, 1992). The biodegradation was recorded by measuring the BOD.

12.3 Bioaccumulative potential

Choline chloride (67-48-1)	
Bio concentration factor	3.2
Log Kow	-3.77



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Based on the Log Kow and Bioconcentration factor value it is expected to have no potential to concentrate in fatty tissue of fish and aquatic organisms.

12.4 Mobility in soil

Choline chloride (67-48-1)	
Log koc	0.369 (estimated). Negligible sorption.
Henry's Law constant	1×10^{-12} atm/m ³ mole at 25 degrees. It is non-volatile from aqueous bodies.
Log Kow	-3.77 (estimated). No potential to bioaccumulate.

12.5 Other adverse effects

- Environment Fate**
Based on the environmental modeling, this material has a negligible potential to get absorbed in the organic matter of soil and is non-volatile from water bodies. Since this is an estimated result it is recommended that the material should not be disposed into the environment. The material should never be disposed into the sewage.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

- Contact a licensed professional waste disposal service to dispose of this material. Dispose in a safe manner in accordance with local/national regulation. Observe all federal, state and local environmental regulation.

SECTION 14: TRANSPORT INFORMATION

ADR/ RID/ DOT	IMDG	IATA
14.1. UN number		
Not dangerous goods	Not dangerous goods	Not dangerous goods
14.2. UN proper shipping name		
Not Applicable	Not Applicable	Not Applicable
14.3. Transport hazard class(es)		
Not Applicable	Not Applicable	Not Applicable
14.4. Packing group		
Not Applicable	Not Applicable	Not Applicable
14.5. Environmental hazards		
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No
No supplementary information available		

14.6 Special precautions for user

- No data available

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

FDA Requirements

- Choline chloride used as a nutrient in food for human consumption is generally recognized as safe when used in accordance with good manufacturing practice.
- Choline chloride used as a nutrient and/or dietary supplement in animal drugs, feeds, and related products is generally recognized as safe when used in accordance with good manufacturing or feeding practice.

15.2 Chemical Safety Assessment

- For this product a chemical safety assessment was not carried out.

SECTION 16: OTHER INFORMATION

a) Compilation information of safety data sheet

Date of compilation : March 16, 2018
Chemical : Choline Chloride 70%



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CAS # : Not Applicable
File Name : 0570Sa Ghs04 Div.6 sds Choline Chloride 70%
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b) A key or legend to aberrations and acronyms used in the safety data sheet

- SCBA= Self Contained Breathing Apparatus.
- NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit.
- OSHA PEL=Occupational Safety and Health Administration Permissible Exposure Limit.
- RTECS= Registry of Toxic Effects of Chemical Substances.
- NTP=National Toxicology Program.
- IARC= International Agency for Research on Cancer.
- Classification, Labeling and Packaging.
- LD / LC = Lethal Doses / Lethal Concentration.
- GHS = Globally Harmonized System.
- ADR = Accord European relative au transport international de marchandises.
- US DOT = United States Department of Transportation.
- IMDG-Code = International Maritime Code for Dangerous Goods.
- ICAO = International Civil Aviation Organization.
- IATA/DGR= International Air Transport Association/Dangerous Goods Regulation

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

(End of Safety Data Sheet)