

Choline Chloride 60% (Corn Cob)

Version number: 1.0

SECTION 1: Identification

1.1 Product identifier

Trade name Choline Chloride 60% (Corn Cob)

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

Relevant identified uses General use

1.3 Details of the supplier of the safety data sheet

Valudor Products, LLC
179 Calle Magdalena Suite 100
Encinitas, California CA 92024
United States

Telephone: +1 (760) 635 8500
e-mail: info@valudor.com
Website: www.valudor.com

1.4 Emergency telephone number

Emergency information 800-535-5053 (Infotrac)

As above or nearest toxicological information centre.

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Classification				
Section	Hazard class	Category	Hazard class and category	Hazard statement
B,cD	combustible dust	Comb. Dust	cD	OSHA003

For full text of abbreviations: see SECTION 16

2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Signal word warning

Pictograms Not required.

Hazard statements

OSHA003 May form combustible dust concentrations in air.

2.3 Other hazards

Dust explosion hazards.

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Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance in a concentration of $\geq 0.1\%$.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not relevant (mixture).

3.2 Mixtures

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS
choline chloride	CAS No 67-48-1	60	-
corn cob		39	-
water	CAS No 7732-18-5	1	-

SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes

Self-protection of the first aider.

Remove affected person from the danger area and lay down.

Do not leave affected person unattended.

Take off immediately all contaminated clothing.

In all cases of doubt, or when symptoms persist, seek medical advice.

Following inhalation

Provide fresh air.

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Following skin contact

Wash with plenty of soap and water.

If skin irritation occurs: Get medical advice/attention.

Following eye contact

Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

Following ingestion

Rinse mouth. Do not induce vomiting.

Get medical advice/attention if you feel unwell.

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Notes for the doctor

None.

4.2 Most important symptoms and effects, both acute and delayed

This information is not available.

4.3 Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

water, foam, alcohol resistant foam, fire extinguishing powder

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible.

Hazardous decomposition products: Section 10.

Danger of dust explosion.

Deposited combustible dust has considerable explosion potential.

Hazardous combustion products

nitrogen oxides (NO_x), carbon monoxide (CO), carbon dioxide (CO₂), hydrogen chloride (HCl)

5.3 Advice for firefighters

Keep containers cool with water spray.

In case of fire and/or explosion do not breathe fumes.

Coordinate firefighting measures to the fire surroundings.

Do not allow firefighting water to enter drains or water courses.

Collect contaminated firefighting water separately.

Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

chemical protection suit, Self-contained breathing apparatus (SCBA)

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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For non-emergency personnel

Remove persons to safety.

Ventilate affected area.

Control of dust.

Do not breathe dust.

Avoid contact with skin and eyes.

Eliminate all ignition sources if safe to do so.

Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water.

Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Take up mechanically.

Advice on how to clean up a spill

Take up mechanically.

Collect spillage.

Other information relating to spills and releases

Place in appropriate containers for disposal.

Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5.

Personal protective equipment: see section 8.

Incompatible materials: see section 10.

Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.

Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge.

Removal of dust deposits.

Only vacuum cleaners containing no ignition sources may be used for combustible dusts.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

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Specific notes/details

Layers, deposits and heaps of combustible dust must be considered, like any other source which can form a hazardous explosive atmosphere.

Dust deposits may accumulate on all deposition surfaces in a technical room.

Danger of dust explosion.

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.

Remove contaminated clothing and protective equipment before entering eating areas.

Do not breathe dust.

Avoid contact with skin and eyes.

Wash hands after use.

Preventive skin protection (barrier creams/ointments) is recommended.

7.2 Conditions for safe storage, including any incompatibilities

Explosive atmospheres

Removal of dust deposits.

Only vacuum cleaners containing no ignition sources may be used for combustible dusts.

Flammability hazards

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Take precautionary measures against static discharge.

Ground/bond container and receiving equipment.

Incompatible substances or mixtures

Incompatible materials: see section 10.

Protect against external exposure, such as

heat

Consideration of other advice

Keep away from food, drink and animal feedingstuffs.

Ventilation requirements

Provision of sufficient ventilation.

Specific designs for storage rooms or vessels

Keep container tightly closed and in a well-ventilated place.

Keep cool.

Packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)

No information available.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

The following constituents are the only constituents of the product which have a PEL, a TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Occupational exposure limit values (Workplace Exposure Limits)									
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Notation	Source
US	Particulates not otherwise regulated	-	PEL (CA)	-	10	-	-	dust	Cal/OSHA PEL
US	Particulates not otherwise regulated	-	PEL (CA)	-	5	-	-	r	Cal/OSHA PEL
US	particulates not otherwise classified	-	REL	-	-	-	-	appx-D	NIOSH REL
US	particulates not otherwise classified (PNOC)	-	PEL	1,766	15	-	-	partml, i, dust	29 CFR 1910.1000
US	particulates not otherwise classified (PNOC)	-	PEL	529.5	5	-	-	partml, r, dust	29 CFR 1910.1000

Notation

appx-D see Appendix D - Substances with No Established RELs

dust as dust

i inhalable fraction

partml particles/ml

r respirable fraction

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

8.2 Exposure controls

Appropriate engineering controls

Use local and general ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

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Hand protection

Wear suitable gloves.

Chemical protection gloves are suitable, which are tested according to EN 374.

Check leak-tightness/impermeability prior to use.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Body protection

Protective clothing for use against solid particulates.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Particle filter device (DIN EN 143).

Environmental exposure controls

Use appropriate container to avoid environmental contamination.

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state

solid
(powder)

Color

yellow to brown

Particle characteristics

Granulometry

< 850 µm = ≥90 %

Odor

odorless

Odor threshold

not determined

Other safety parameters

pH (value)

not applicable

Melting point/freezing point

not determined

Boiling point or initial boiling point and boiling range

not determined

Flash point

not applicable

Evaporation rate

not determined

Flammability (solid, gas)

this material is combustible, but will not ignite readily

Explosive limits

not determined

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Explosion limits of dust clouds	not determined
Vapor pressure	not determined
Density	not determined
Relative vapour density	not applicable
Solubility(ies)	
Water solubility	insoluble
Partition coefficient	
n-octanol/water (log KOW)	not determined
Auto-ignition temperature	not determined
Decomposition temperature	247 °C
Viscosity	not relevant (solid)
Explosive properties	dust explosion hazards
Oxidizing properties	none
Information for relevant hazard classes according to GHS	there is no additional information
9.2 Other information	there is no additional information

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

Danger of dust explosion.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharge.
Control of dust.

10.5 Incompatible materials

bases, oxidizers

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10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification procedure

If not otherwise specified the classification is based on:

Ingredients of the mixture (additivity formula).

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Acute toxicity

Shall not be classified as acutely toxic (oral).

Exposure route	Endpoint	Value	Species	Method	Source
oral	LD50	5,667 mg/kg	rat	-	-

Acute toxicity of components							
Name of substance	CAS No	Exposure route	End-point	Value	Species	Method	Source
choline chloride	67-48-1	oral	LD50	3,400 mg/kg	rat	-	GESTIS

Skin corrosion/irritation

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Serious eye damage/eye irritation

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory or skin sensitization

Skin sensitization

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory sensitization

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

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Germ cell mutagenicity

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Carcinogenicity

IARC Monographs

None of the ingredients are listed.

National Toxicology Program (United States)

None of the ingredients are listed.

OSHA Carcinogens

None of the ingredients are listed.

Reproductive toxicity

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - single exposure

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - repeated exposure

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Other information

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

Based on available data, the classification criteria are not met.

Aquatic toxicity (acute) of components

Name of substance	CAS No	Endpoint	Exposure time	Value	Species	Method	Source
choline chloride	67-48-1	LC50	96 h	>10,000 mg/l	orfe (Leuciscus idus)	-	ECHA
choline chloride	67-48-1	EC50	48 h	500 mg/l	daphnia	-	ECHA

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Name of substance	CAS No	Endpoint	Exposure time	Value	Species	Method	Source
choline chloride	67-48-1	ErC50	72 h	>1,000 mg/l	algae (pseudokirchneriella subcapitata)	-	ECHA

Aquatic toxicity (chronic)

Based on available data, the classification criteria are not met.

Aquatic toxicity (chronic) of components

Name of substance	CAS No	Endpoint	Exposure time	Value	Species	Method	Source
choline chloride	67-48-1	LC50	21 d	>95.5 mg/l	daphnia magna	OECD Guideline 211	ECHA
choline chloride	67-48-1	NOEC	21 d	30.2 mg/l	daphnia magna	OECD Guideline 211	ECHA
choline chloride	67-48-1	LOEC	21 d	95.5 mg/l	daphnia magna	OECD Guideline 211	ECHA
choline chloride	67-48-1	growth (Eb-Cx) 10%	72 h	>500 mg/l	algae (Desmodesmus subspicatus)	-	ECHA
choline chloride	67-48-1	growth rate (ErCx) 10%	72 h	>500 mg/l	algae (Desmodesmus subspicatus)	-	ECHA

12.2 Persistence and degradability

Biodegradation

Test data are not available for the complete mixture.

Degradability of components

Name of substance	CAS No	Process	Degradation rate	Time	Method	Source
choline chloride	67-48-1	oxygen depletion	>75 %	5 d	-	ECHA

Persistence

No data available.

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12.3 Bioaccumulative potential

Bioaccumulative potential of components

Name of substance	CAS No	BCF	Log KOW
choline chloride	67-48-1	3.16	-3.77 (25 °C)

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance in a concentration of $\geq 0.1\%$.

12.6 Other adverse effects

Data are not available.

Remarks

None.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packages

Completely emptied packages can be recycled.
Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	UN number	not assigned
14.2	UN proper shipping name	-
14.3	Transport hazard class(es)	-
14.4	Packing group	-
14.5	Environmental hazards	-
14.6	Special precautions for user	-
14.7	Transport in bulk according to IMO instruments	-

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14.8 Information for each of the UN Model Regulations

Transport of dangerous goods by road or rail (49 CFR US DOT) Additional information

Not subject to transport regulations.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

National regulations (United States)

Toxic Substance Control Act (TSCA) Not all ingredients are listed (ACTIVE)

Superfund Amendment and Reauthorization Act (SARA TITLE III)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

None of the ingredients are listed

Specific Toxic Chemical Listings (EPCRA Section 313)

None of the ingredients are listed

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

None of the ingredients are listed

Clean Air Act

None of the ingredients are listed

Right to Know Hazardous Substance List

Toxic or Hazardous Substance List (MA-TURA)

None of the ingredients are listed

Hazardous Substances List (MN-ERTK)

None of the ingredients are listed

Name of substance	Name acc. to inventory	CAS No	References	Remarks
Choline Chloride 60% (Corn Cob)	Dust, Inert or Nuisance (When toxic impurities are not present, for example, quartz less than 1 percent.)	-	A	dust

Legend

A American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 1992-93", available from ACGIH

dust If the substance poses an airborne particulate exposure hazard, the substance is followed by the word "dust."

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Hazardous Substance List (NJ-RTK)

None of the ingredients are listed

Hazardous Substance List (Chapter 323) (PA-RTK)

None of the ingredients are listed

Hazardous Substance List (RI-RTK)

None of the ingredients are listed

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

None of the ingredients are listed

Drug precursors, Chemicals designated within the Controlled Substances Act, 21 U.S.C. § 802, paragraphs 34 (list I) and 35 (list II)

None of the ingredients are listed

SECTION 16: Other information, including date of preparation or last revision

Date of preparation: 2024-02-23

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
29 CFR 1910.1000	29 CFR 1910.1000, Tables Z-1, Z-2, Z-3 - Occupational Safety and Health Standards: Toxic and Hazardous Substances (permissible exposure limits)
49 CFR US DOT	49 CFR U.S. Department of Transportation
BCF	Bioconcentration factor
Cal/OSHA PEL	California Division of Occupational Safety and Health (Cal/OSHA): Permissible Exposure Limits (PELs)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IARC	International Agency for Research on Cancer
IARC Monographs	IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)

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Abbr.	Descriptions of used abbreviations
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
LOEC	Lowest Observed Effect Concentration
log KOW	n-Octanol/water
NIOSH REL	National Institute for Occupational Safety and Health (NIOSH): Recommended Exposure Limits (RELs)
NOEC	No Observed Effect Concentration
OSHA	Occupational Safety and Health Administration (United States)
PBT	Persistent, Bioaccumulative and Toxic
PEL	Permissible exposure limit
ppm	Parts per million
STEL	Short-term exposure limit
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT).

International Maritime Dangerous Goods Code (IMDG).

Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties.

Health hazards.

Environmental hazards.

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
OSHA003	May form combustible dust concentrations in air.

Responsible for the safety data sheet

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Disclaimer

This information is based upon the present state of our knowledge.
This SDS has been compiled and is solely intended for this product.