

**ROTOSTAR AQUA 441 GOLD 3556-29**

Version	Revision Date:	SDS Number:	Date of last issue: 01/27/2025
3.3	03/31/2025	102000026958	Date of first issue: 03/26/2018

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**SECTION 1. IDENTIFICATION**

Product name : ROTOSTAR AQUA 441 GOLD 3556-29  
Product code : 046528CT0

**Manufacturer or supplier's details**

Company name of supplier : ECKART America Corporation  
Address : 830 East Erie Street  
Painesville OH 44077  
Telephone : 866-458-7837  
(440) 954-7600  
Telefax : (440) 354-6224  
e-mail adresse : info.eckart.america.oh@altana.com  
Emergency telephone : **CHEMTREC:** 800-424-9300  
**CHEMTREC:** 1-703-527-3387 (International)

**NCEC:**

(contract no. ECKART29003-NCEC)  
US: +1 866 928 0789 (Toll free)  
Canada: +1 800 579 7421 (Toll Free)  
Mexico: +52 55 5004 8763

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**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Acute toxicity (Oral) : Category 4  
Eye irritation : Category 2A  
Skin sensitization : Category 1

**GHS label elements**

Hazard pictograms :



Signal Word : Warning  
Hazard Statements : H302 Harmful if swallowed.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.

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## Precautionary Statements

: **Prevention:**

P261	Avoid breathing mist or vapors.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing must not be allowed out of the workplace.
P280	Wear protective gloves/ eye protection/ face protection.

**Response:**

P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.

**Disposal:**

P501	Dispose of contents/ container to an approved waste disposal plant.
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Hazardous ingredients which must be listed on the label:

Copper  
5-Decyne-4,7-diol, 2,4,7,9-tetramethyl-

**Other hazards**

None known.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS****Hazardous ingredients**

Chemical name	CAS-No.	Concentration (% w/w)
Copper	7440-50-8	$\geq 30 - < 50$
1,2-Propanediol	57-55-6	$\geq 5 - < 10$
Zinc	7440-66-6	$\geq 1 - < 5$
2-Propanol	67-63-0	$\geq 1 - < 5$

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5-Decyne-4,7-diol, 2,4,7,9-tetramethyl-	126-86-3	>= 0.1 - < 1
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Actual concentration is withheld as a trade secret

**SECTION 4. FIRST AID MEASURES**

General advice	: Take the victim into fresh air. Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.
If inhaled	: If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	: Wash off immediately with soap and plenty of water.
In case of eye contact	: Immediately flush eye(s) with plenty of water. Remove contact lenses. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	: Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.
Most important symptoms and effects, both acute and delayed	: Harmful if swallowed. May cause an allergic skin reaction. Causes serious eye irritation. Harmful if swallowed. May cause an allergic skin reaction. Causes serious eye irritation.

**SECTION 5. FIRE-FIGHTING MEASURES**

Suitable extinguishing media	: Special powder against metal fire Dry sand ABC powder
Unsuitable extinguishing media	: Water High volume water jet Carbon dioxide (CO <sub>2</sub> )
Specific hazards during fire fighting	: Do not allow run-off from fire fighting to enter drains or water courses.
Further information	: Standard procedure for chemical fires. 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.
Special protective equipment for fire-fighters	: Wear self-contained breathing apparatus for firefighting if necessary.

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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- |   |   |  |
|---|---|--|
| Personal precautions,<br>protective equipment and<br>emergency procedures | : | Evacuate personnel to safe areas.<br>Ensure adequate ventilation.<br>Use personal protective equipment.  |
| General advice  | : | The product should not be allowed to enter drains, water<br>courses or the soil.<br>Prevent product from entering drains.<br>Prevent further leakage or spillage if safe to do so.<br>If the product contaminates rivers and lakes or drains inform<br>respective authorities.   |
| Environmental precautions   | : | The product should not be allowed to enter drains, water<br>courses or the soil.<br><br>Prevent product from entering drains.<br>Prevent further leakage or spillage if safe to do so.<br>If the product contaminates rivers and lakes or drains inform<br>respective authorities.   |
| Methods and materials for<br>containment and cleaning up                  | : | Use mechanical handling equipment.<br><br>Pick up and transfer to properly labeled containers.<br>Do not flush with water.<br>Contain spillage, and then collect with non-combustible<br>absorbent material, (e.g. sand, earth, diatomaceous earth,<br>vermiculite) and place in container for disposal according to<br>local / national regulations (see section 13).<br><br>Soak up with inert absorbent material (e.g. sand, silica gel,<br>acid binder, universal binder, sawdust).<br>Keep in suitable, closed containers for disposal. |

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**SECTION 7. HANDLING AND STORAGE**

- |  |   |  |
|--|---|--|
| Advice on protection against<br>fire and explosion | : | Keep away from heat and sources of ignition.<br>No smoking.<br><br>Normal measures for preventive fire protection.   |
| Advice on safe handling                            | : | Do not breathe vapors/dust.<br>Avoid contact with skin and eyes.<br>For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the |
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application area.  
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Keep away from sources of ignition - No smoking.  
Do not store near combustible materials.  
Keep containers tightly closed in a cool, well-ventilated place.  
To maintain product quality, do not store in heat or direct sunlight.  
Keep container tightly closed in a dry and well-ventilated place.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Electrical installations / working materials must comply with the technological safety standards.

Technical measures/Precautions : Protect from humidity and water.

Materials to avoid : Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.  
Do not store together with oxidizing and self-igniting products.

Further information on storage stability : No decomposition if stored and applied as directed.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Copper	7440-50-8	TWA	1 mg/m3 (Copper)	ACGIH
		TWA (dust and mists)	1 mg/m3 (Copper)	NIOSH REL
		TWA	1 mg/m3 (Copper)	OSHA P0
		TWA	0.2 mg/m3 (Copper)	ACGIH
		TWA	0.1 mg/m3 (Copper)	OSHA P0
		TWA (Dust and mist)	1 mg/m3 (Copper)	ACGIH
		TWA (Fumes)	0.2 mg/m3 (Copper)	ACGIH
		TWA (Dust)	1 mg/m3 (Copper)	NIOSH REL

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		TWA (Mist)	1 mg/m3 (Copper)	NIOSH REL
		TWA (dusts and mists)	1 mg/m3 (Copper)	OSHA Z-1
		TWA (Fumes)	0.1 mg/m3 (Copper)	OSHA Z-1
		TWA (Fumes)	0.1 mg/m3 (Copper)	OSHA P0
		TWA (Dust and mist)	1 mg/m3 (Copper)	OSHA P0
1,2-Propanediol	57-55-6	TWA	10 mg/m3	US WEEL
Zinc	7440-66-6	TWA (total dust)	50 Million particles per cubic foot	OSHA Z-3
		TWA (total dust)	15 mg/m3	OSHA Z-3
		TWA (respirable fraction)	5 mg/m3	OSHA Z-3
		TWA (respirable fraction)	15 Million particles per cubic foot	OSHA Z-3
2-Propanol	67-63-0	TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH
		TWA	400 ppm 980 mg/m3	NIOSH REL
		ST	500 ppm 1,225 mg/m3	NIOSH REL
		TWA	400 ppm 980 mg/m3	OSHA Z-1
		TWA	400 ppm 980 mg/m3	OSHA P0
		STEL	500 ppm 1,225 mg/m3	OSHA P0

**Biological occupational exposure limits**

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
2-Propanol	67-63-0	Acetone	Urine	End of shift at end of workweek	40 mg/l	ACGIH BEI

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**Personal protective equipment**

Respiratory protection : Use suitable breathing protection if workplace concentration requires.  
Equipment should conform to EN 14387

Hand protection  
Material : Solvent-resistant gloves (butyl-rubber)

Remarks : Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). The exact break through time can be obtained from the protective glove producer and this has to be observed. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Recommended preventive skin protection Skin should be washed after contact. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Safety glasses  
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : General industrial hygiene practice.  
When using do not eat or drink.  
When using do not smoke.  
Wash hands before breaks and at the end of workday.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : liquid  
Color : gold  
Odor : characteristic  
Odor Threshold : No data available  
pH : 6 - 8  
Concentration: 100 %

Melting point/ range : Not applicable  
Boiling point/boiling range : > 100 °C

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Flash point	:	> 100 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative density	:	No data available
Density	:	1.55 - 1.61 g/cm3
Solubility(ies)	:	
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	No data available
Total Volatile organic compounds (VOC) content	:	5.00 - 10.00 %

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	Stable under recommended storage conditions. No decomposition if stored and applied as directed.
Conditions to avoid	:	Do not allow evaporation to dryness. No data available

**Hazardous decomposition products**

Thermal decomposition	:	Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
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**SECTION 11. TOXICOLOGICAL INFORMATION****Acute toxicity**

Harmful if swallowed.  
Harmful if swallowed.

**Components:****Copper:**

Acute oral toxicity	:	Assessment: The component/mixture is moderately toxic after
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single ingestion.

**1,2-Propanediol:**

Acute oral toxicity : LD50 (Rat): > 22,000 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

**Zinc:**

Acute oral toxicity : (Rat): > 2,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 5.41 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

**2-Propanol:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

**Skin corrosion/irritation**

Not classified based on available information.

Not classified due to lack of data.

**Components:****Copper:**

Remarks: May cause skin irritation in susceptible persons.

**1,2-Propanediol:**

Result: No skin irritation

**Serious eye damage/eye irritation**

Causes serious eye irritation.

Causes serious eye irritation.

**Components:****Copper:**

Result: Eye irritation

**1,2-Propanediol:**

Result: No eye irritation

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**2-Propanol:**

Result: Eye irritation

**5-Decyne-4,7-diol, 2,4,7,9-tetramethyl-:**

Result: Irreversible effects on the eye

**Respiratory or skin sensitization****Skin sensitization**

May cause an allergic skin reaction.

**Skin sensitization**

May cause an allergic skin reaction.

**Respiratory sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified due to lack of data.

**Components:****5-Decyne-4,7-diol, 2,4,7,9-tetramethyl-:**

Result: The product is a skin sensitizer, sub-category 1B.

**Germ cell mutagenicity**

Not classified based on available information.

Not classified due to lack of data.

**Carcinogenicity**

Not classified based on available information.

Not classified due to lack of data.

**IARC**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA**

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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**Reproductive toxicity**

Not classified based on available information.  
Not classified due to lack of data.

**STOT-single exposure**

Not classified based on available information.  
Not classified due to lack of data.

**Components:****2-Propanol:**

Assessment: May cause drowsiness or dizziness.

**STOT-repeated exposure**

Not classified based on available information.  
Not classified due to lack of data.

**Aspiration toxicity**

Not classified based on available information.  
Not classified due to lack of data.

**Further information****Components:****Copper:**

Remarks: No data available

**Zinc:**

Remarks: No data available

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**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****Copper:**

M-Factor (Acute aquatic toxicity)	:	10
M-Factor (Chronic aquatic toxicity)	:	10

**Ecotoxicology Assessment**

Acute aquatic toxicity	:	Very toxic to aquatic life.
Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

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**1,2-Propanediol:**

Toxicity to daphnia and other aquatic invertebrates : (Daphnia magna (Water flea)): > 10,000 mg/l

**Zinc:**

M-Factor (Acute aquatic toxicity) : 1

M-Factor (Chronic aquatic toxicity) : 1

**Ecotoxicology Assessment**

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

**5-Decyne-4,7-diol, 2,4,7,9-tetramethyl-:**

M-Factor (Acute aquatic toxicity) : 1

M-Factor (Chronic aquatic toxicity) : 1

**Ecotoxicology Assessment**

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Other adverse effects**

No data available

**Components:****Copper:**

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Very toxic to aquatic life with long lasting effects.

**1,2-Propanediol:**

Additional ecological information : No data available

**Zinc:**

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Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Very toxic to aquatic life with long lasting effects.

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**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.  
In accordance with local and national regulations.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.  
In accordance with local and national regulations.

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**SECTION 14. TRANSPORT INFORMATION****Domestic regulation****49 CFR**

Not regulated as a dangerous good

**International Regulations****IATA-DGR**

UN/ID No. : UN 3082  
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.  
(Copper metal powder)  
Class : 9  
Packing group : III  
Labels : Miscellaneous Dangerous Goods  
Packing instruction (cargo aircraft) : 964  
Packing instruction (passenger aircraft) : 964

**IMDG-Code**

UN number : UN 3082  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
N.O.S.  
(Copper metal powder)  
Class : 9  
Packing group : III  
Labels : 9

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EmS Code : F-A, S-F  
Marine pollutant : yes

Remarks : For single packagings <=5L / 5 kg, or combination packagings containing inner packagings <= 5L / 5 kg net per inner packaging, SV375 ADR, 2.10.2.7 IMDG-Code, A197 IATA-DGR may be applied.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**SECTION 15. REGULATORY INFORMATION****EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)
Copper	7440-50-8	5000
Zinc	7440-66-6	1000
1,2-Ethanediol	107-21-1	5000
Ethanamine, N,N-diethyl-	121-44-8	5000
Sodium hydroxide (Na(OH))	1310-73-2	1000
Ammonia	7664-41-7	100
Benzene, ethenyl-	100-42-5	1000

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)
Ammonia	7664-41-7	100

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : Acute toxicity (any route of exposure)  
Respiratory or skin sensitization  
Serious eye damage or eye irritation

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

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Copper	7440-50-8	>= 30 - < 50 %
Zinc	7440-66-6	>= 1 - < 5 %
2-Propanol	67-63-0	>= 1 - < 5 %

**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMII Intermediate or Final VOC's (40 CFR 60.489):

1,2-Propanediol	57-55-6	>= 5 - < 10 %
2-Propanol	67-63-0	>= 1 - < 5 %
White mineral oil (petroleum)	8042-47-5	>= 0.1 - < 1 %

**Clean Water Act**

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Ethanamine, N,N-diethyl-	121-44-8	%
Sodium hydroxide (Na(OH))	1310-73-2	%
Ammonia	7664-41-7	%
Benzene, ethenyl-	100-42-5	%

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Ethanamine, N,N-diethyl-	121-44-8	%
Sodium hydroxide (Na(OH))	1310-73-2	%
Ammonia	7664-41-7	%
Benzene, ethenyl-	100-42-5	%

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

Copper	7440-50-8	33.6994 %
Zinc	7440-66-6	3.429 %

This product contains the following priority pollutants related to the U.S. Clean Water Act:

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Copper	7440-50-8	33.6994 %
Zinc	7440-66-6	3.429 %

**US State Regulations****Massachusetts Right To Know**

Copper	7440-50-8
Zinc	7440-66-6
2-Propanol	67-63-0

**Pennsylvania Right To Know**

Copper	7440-50-8
Water	7732-18-5
Polyurethane/polyurea polymer	Not Assigned
1,2-Propanediol	57-55-6
Dextrin	9004-53-9
Zinc	7440-66-6
2-Propanol	67-63-0
Aluminum	7429-90-5
Ethanamine, N,N-diethyl-	121-44-8

**California Prop. 65**

WARNING: This product can expose you to chemicals including lead and cadmium, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).



WARNING: This product can expose you to chemicals including Benzene, ethenyl-, which is/are known to the State of California to cause cancer, and 1,2-Ethanediol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**California List of Hazardous Substances**

Copper	7440-50-8
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Zinc 7440-66-6

2-Propanol 67-63-0

**California Permissible Exposure Limits for Chemical Contaminants**

Copper 7440-50-8

Zinc 7440-66-6

2-Propanol 67-63-0

**The ingredients of this product are reported in the following inventories:**

DSL : This product contains one or several components listed in the Canadian NDSL.

TSCA : All chemical substances in this product are either listed as active on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

**TSCA list**

No substances are subject to a Significant New Use Rule.

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

Zinc 7440-66-6

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**SECTION 16. OTHER INFORMATION****Full text of other abbreviations**

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)

NIOSH REL : USA. NIOSH Recommended Exposure Limits

OSHA P0 : USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)

OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

OSHA Z-3 : USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts

US WEEL : USA. Workplace Environmental Exposure Levels (WEEL)

ACGIH / TWA : 8-hour, time-weighted average

ACGIH / STEL : Short-term exposure limit

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NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour  
workday during a 40-hour workweek

NIOSH REL / ST : STEL - 15-minute TWA exposure that should not be exceeded  
at any time during a workday

OSHA P0 / TWA : 8-hour time weighted average

OSHA P0 / STEL : Short-term exposure limit

OSHA Z-1 / TWA : 8-hour time weighted average

OSHA Z-3 / TWA : 8-hour time weighted average

US WEEL / TWA : 8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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# SAFETY DATA SHEET



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