

Safety Data Sheet

Section 1. Identification

Product name : ZnBrite™ KZ-551 BRIGHTENER
Product code : 425279
Uses advised against : Consumer, private households, general public
Product type : Liquid.
Validation date : 1/23/2014.

Manufacturer - Supplier	Telephone no.:	Fax no.	Emergency phone:
Enthone Inc 350 Frontage Road West Haven, CT 06516	Tel: (203) 934-8611	Fax:(203) 799-8179	DOMESTIC NORTH AMERICA 800-424-9300 INTERNATIONAL, CALL +1 703-527-3887 (collect calls accepted)
Cookson Enthone Chemistry Trading (Shanghai) Co., Ltd. Rm 201, No.388 of Muhua North Road, Fengxian District, Shanghai	Tel: 86-21-6390 0600	Fax: 86-21-50912810	Tel: 0532-8388 9090 (24- hour)
Enthone Chemistry A Division of Cookson Singapore Pte Ltd 26 Tuas West Road Singapore 638382	Tel: (65) 6861 1773	Fax: (65) 68611145	Tel: (65) 6861 1773
ENTHONE SDN. BHD. Lot 34 & 36 Lorong IKS Juru 7 Taman Perindustrian Ringan Juru 14100 Simpang Ampat Seberang Perai Selatan Penang, Malaysia	Tel: 60 - 4 507 7787	Fax: 60 4 507 0621	Tel: 60 4 507 7787
Enthone Korea 1Ra 310, Sihwa Industrial Complex, 1247-9, Jungwang-Dong, Siheung-Si, Gyeonggi-Do, Korea	Tel: 82-31-432-4100	82-31-433-1478	Tel: 82-31-432-4100
Enthone Inc. Taiwan Branch 2F, B Building, No. 10, Lu-Shing Street, Luchu Hsiang, 338 Taoyuan, Taiwan	Tel: 03-312-0280	Fax: 03-312-0380	Tel: 886-937408981
Alent Japan Company - Enthone 480-28 Higashitoyoda, Hiratsuka, Kanagawa 254-0082, Japan	Tel: 81-463-51-4330	Fax: 81-463-55-2588	Tel: 81-(0)463-51-4330
Enthone India A Division of Cookson India Pte. Ltd Developed Plot no 16, North Phase, SIDCO Industrial estate, Ambattur, Chennai - 600098.	Tel: 91-44-26252666	Fax: 91-44-26258627	Tel: 91-44-26252666

Section 2. Hazards identification

Classification of the substance or mixture : SKIN CORROSION/IRRITATION - Category 2
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
 AQUATIC TOXICITY (ACUTE) - Category 3

GHS label elements

Continued on next page

Section 2. Hazards identification

Symbol :



Signal word :

Danger

Hazard statements :

Causes skin irritation.
Causes serious eye damage.
Harmful to aquatic life.

Precautionary statements

Prevention :

Read label before use. Do not breathe dust or mist. Wash thoroughly after handling. Wear protective gloves. Wear eye/face protection. Avoid release to the environment. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Response :

Immediately call a POISON CENTER or doctor/physician. IF ON SKIN: Take off contaminated clothing and wash before re-use. Wash with plenty of soap and water. If skin irritation occurs, seek medical advice/attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage :

No special measures required.

Disposal :

Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification : Not available.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
Chlorinated Aromatic Compound	1-10	-
Sodium Salt	1-10	-

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in section 8.

Section 4. First aid measures

Description of necessary first aid measures

Inhalation :

Get medical attention immediately. If it is suspected that mists are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Move exposed person to fresh air. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Keep person warm and at rest. If unconscious, place in recovery position and get medical attention immediately. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

Continued on next page

Section 4. First aid measures

- Ingestion** : Get medical attention immediately. Chemical burns must be treated promptly by a physician. Move exposed person to fresh air. Wash out mouth with water. Keep person warm and at rest. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Remove dentures if any. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately. Never give anything by mouth to an unconscious person. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
- Skin contact** : Get medical attention immediately. Chemical burns must be treated promptly by a physician. Provide a readily-accessible eyewash facility and quick-drench safety shower. In case of contact, immediately flush skin with plenty of water for at least 30 minutes while removing contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Get medical attention immediately. Chemical burns must be treated promptly by a physician. Check for and remove any contact lenses. Immediately flush eyes with running water for at least 30 minutes, keeping eyelids open.

Over-exposure signs/symptoms

See section 11 for more detailed information on health effects and symptoms.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that mists are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Personnel should wear protective clothing. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 5. Fire-fighting measures

Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
sulfur oxides
halogenated compounds
metal oxide/oxides
- Special precautions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Continued on next page

Section 5. Fire-fighting measures

Remark : Not available.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Put on appropriate personal protective equipment (see section 8). Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not breathe vapor or mist. Do not ingest. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Be sure area is equipped with all necessary emergency equipment including fire extinguishers, and spill response materials. Empty containers retain product residue and can be hazardous. Do not reuse product container. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Ingredient name	Exposure limits
Sodium Salt	ACGIH TLV (United States, 3/2012). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens. TWA: 5 mg/m ³ 8 hour(s).

Continued on next page

Section 8. Exposure controls/personal protection

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.
- Eye protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Avoid contact with eyes. Use safety eyewear designed to protect against splash of liquids.
- Skin protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Avoid contact with skin and clothing. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Section 9. Physical and chemical properties

- Physical state** : Liquid.
- Color** : Clear.
- Odor** : Pungent.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : 100°C (212°F)
- Flash point** : Not available.
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.

Continued on next page

Section 9. Physical and chemical properties

Lower and upper explosive (flammable) limits	: Not available.
Vapor pressure	: Not available.
Vapor density	: Not available.
Relative density	: 1.04 to 1.07
Solubility	: Easily soluble in the following materials: cold water and hot water.
Octanol/water partition coefficient	: Not available.
Decomposition temperature	: Not available.
Auto-ignition temperature	: Not available.
Viscosity	: Not available.

Section 10. Stability and reactivity

Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid release to the environment.
Incompatibility with various substances	: Reactive with oxidizing agents.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential health effects

Inhalation	: May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	: May cause burns to mouth, throat and stomach.
Skin	: Causes skin irritation.
Eyes	: Causes serious eye damage. Direct contact with the eyes can cause irreversible damage, including blindness.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	16351.9 mg/kg

Product/ingredient name	Result	Species	Dose	Exposure
Chlorinated Aromatic Compound Sodium Salt	LD50 Oral	Rat	2160 mg/kg	-
	LD50 Oral	Mouse	910 mg/kg	-
	LD50 Oral	Rat	1131 mg/kg	-

Additional information:

Continued on next page

Section 12. Ecological information

Ecotoxicity : This material is harmful to aquatic life.

Aquatic and terrestrial toxicity

Product/ingredient name	Test	Result		
Chlorinated Aromatic Compound	-	Acute LC50 2450 to 2700 ug/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss - Juvenile (Fledgling, Hatchling, Weanling) - 24.4 mm - 146 mg	96 hours
Sodium Salt	-	Acute LC50 32 mg/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 2.8 cm	96 hours

Conclusion/Summary : Not available.

Persistence/degradability

Product/ingredient name	Test	Result
Not available.		

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis
Not available.		

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Chlorinated Aromatic Compound	2.33	-	low
Sodium Salt	-3.7	-	low

Mobility : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG* Label	Additional information
DOT Classification	Not regulated.	-	-	-	-
IMDG Class	Not regulated.	-	-	-	-
IATA-DGR Class	Not regulated.	-	-	-	-
UN Class	Not regulated.	-	-	-	-

PG* : Packing group

Section 15. Regulatory information

China

List of Toxic Chemicals Severely Restricted for Importing & Exporting by China

None of the components are listed.

Korea

a. Regulation according to ISHA

ISHA Article 37 : None of the components are listed.

ISHA Article 38 : None of the components are listed.

b. Regulation according to TCCA

TCCA Toxic chemicals : Not applicable

TCCA Observational chemicals : None of the components are listed.

TCCA Article 32 (Banned) : None of the components are listed.

TCCA Article 32 (Restricted) : None of the components are listed.

c. Dangerous Materials Control Act : Not available.

Europe

Safety, health and environmental regulations specific for the product : No known specific national and/or regional regulations applicable to this product (including its ingredients).

Japan

Poisonous and Deleterious Substances

Ingredient name

Status

None of the components are listed.

ISHL

ISHL Class :

Working Conditions Act; Health and Safety Act :

ISHL Prevention of Tetraalkyl Lead Poisoning : Not listed

ISHL Harmful Substances Subject to Obtaining Permission for Manufacturing : Not listed

Continued on next page

Section 15. Regulatory information

ISHL Harmful Substances, Prohibited for Manufacturing : Not listed

ISHL Chemicals requiring notification : Listed

ISHL Dangerous Substances : Not listed

List of Specially Controlled Industrial Waste : Not listed

Pollutant Release and Transfer Registers (PRTR) : Not listed

Fire Service Law - Obstructive materials : Not listed

Taiwan

List of chemicals reputed to be a "threat of imminent danger" : This product contains substances considered to be a "Threat of imminent danger": Ammonium Hydroxide, Hydrochloric acid, sulphuric acid, Aldehyde., 1,4-dioxane.

International lists

China inventory (IECSC) : All components are listed or exempted.

Australia inventory (AICS) : All components are listed or exempted.

United States TSCA : TSCA 5(a)2 proposed significant new use rules: No products were found.
TSCA 5(a)2 final significant new use rules: No products were found.
TSCA 12(b) one-time export: No products were found.
TSCA 12(b) annual export notification: No products were found.

United States inventory (TSCA 8b) : All components are listed or exempted.

Section 16. Other information

History

Validation date : 1/23/2014.
Supersedes Date : 3/27/2013.
Prepared by : T. Valverde
(203)-799-4940
Enthone Inc
350 Frontage Road
West Haven, CT 06516
Phone: (203) 934-8611
Fax: (203) 799-8179
www.enthone.com

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Continued on next page

Section 16. Other information

4.1b1161