



# MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

## BASIC CHEMICAL SOLUTIONS

### **PART I** *What is the material and what do I need to know in an emergency?*

#### 1. PRODUCT IDENTIFICATION

**TRADE NAME (AS LABELED):** **BCS QUAT DS**  
**CHEMICAL NAME/CLASS:** Aqueous Quaternary Ammonium Chloride Solution  
**PRODUCT USE:** Disinfectant  
**SUPPLIER/MANUFACTURER'S NAME:** **BASIC CHEMICAL SOLUTIONS**  
**ADDRESS:** **Corporate Office**  
525 Seaport Blvd.  
Redwood City, CA 94063  
**BUSINESS PHONE:** 800-411-4227  
**EMERGENCY PHONE:** **CHEMTREC:** 800-424-9300  
**DATE OF PREPARATION:** May 14, 2004  
**DATE OF REVISION:** March 16, 2009

Si usted no entiende las Hojas de Informacion de Seguridad sobre Materials, busque a alguien para que se la explique a usted en detalle.

(If you do not understand the Material Safety Data Sheet, find someone to explain it to you in detail.)

#### 2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	%w/w	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Alkyl dimethyl benzyl ammonium chloride	68391-01-5	5	NE	NE	NE	NE	NE	NE
Alkyl dimethyl ethylbenzyl ammonium chloride	68956-79-6	5	NE	NE	NE	NE	NE	NE
Ethanol	64-17-5	0 - 0.4%	NE	NE	NE	NE	NE	NE
Water and other ingredients. The other ingredients are each present in less than 1 percent concentration in this product.			Balance	The components present in the balance of this product do not contribute any significant, additional hazards. All hazard information pertinent to this product has been presented in the remaining sections of this Material Safety Data Sheet, per the requirements of Federal Occupational Safety and Health Hazard Communication Standard (29 CFR 1910.1200).				

NE = Not Established. C = Ceiling Limit. See Section 16 for Definitions of Terms Used. NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

### 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** This product is a colorless to light straw solution with a mild, benzaldehyde-like odor. This solution is a primary irritant to skin, eyes, and other contaminated tissues and can cause corrosive damage upon prolonged exposure. Inhalation of high concentrations of this product's vapors can irritate the tissues of the respiratory. Vapors of this product may ignite if exposed to extremely high temperatures; however, due to the high water content, ignition will not be sustained. This product is not reactive under typical circumstances of use or release-response. Emergency responders must wear the proper personal protective equipment suitable for the situation to which they are responding.

**SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE:** The most significant routes of occupational overexposure are inhalation and contact with skin and eyes. The symptoms of overexposure to this product are as follows:

**INHALATION:** If mists or sprays of this solution are inhaled, irritation of the tissues of the respiratory system will occur.

**CONTACT WITH SKIN or EYES:** This solution is a primary irritant of the skin and eyes. Contact with the eyes will cause irritation, pain, reddening. Exposure of the eyes may result in blindness. Skin contact may result in stinging, reddening, discomfort, and irritation. Prolonged exposure may result in chemical burns.

**SKIN ABSORPTION:** Skin absorption is not anticipated to be a significant route of over-exposure for any component of this product.

**INGESTION:** Though ingestion is not anticipated to be a significant route of over-exposure to this product, if this solution is swallowed, severe irritation and chemical burns of the mouth, throat, esophagus, and other tissues of the digestive system will occur immediately upon contact. Ingestion can result in swelling of the larynx, skeletal muscle paralysis affecting the ability to breath, circulatory shock, and convulsions. Ingestion may be fatal.

**INJECTION:** Though injection is not anticipated to be a significant route of over-exposure to this product, if it occurs, it may cause local reddening, tissue swelling, and discomfort.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE:** An Explanation in **Lay Terms**.

**ACUTE:** This solution is severely irritating and potentially corrosive, and can burn and damage eyes, skin, mucous membranes, and any other exposed tissue. If vapors, mists, or sprays are inhaled, irritation of the respiratory system may occur, with coughing, and breathing difficulty. Though unlikely to occur during occupational use, ingestion may be fatal.

**CHRONIC:** Repeated skin contact with this product may result in dermatitis (inflammation and reddening of the skin).



#### HAZARDOUS MATERIAL INFORMATION SYSTEM

HEALTH	(BLUE)	2
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FLAMMABILITY	(RED)	0
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REACTIVITY	(YELLOW)	0
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PROTECTIVE EQUIPMENT	B
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EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		SEE SECTION 8

For routine industrial applications

**See Section 16 for Definition of Ratings**

## PART II *What should I do if a hazardous situation occurs?*

### 4. FIRST-AID MEASURES

**SKIN EXPOSURE:** If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove contaminated clothing, taking care not to contaminate eyes. Victim must seek medical attention if adverse effects occur.

**EYE EXPOSURE:** If this product enters the eyes, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victim must seek immediate medical attention.

**INHALATION:** If mists or sprays of this product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.

**INGESTION:** If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Victim should drink large quantities egg whites, gelatin or if these are not available, large quantities of water. Never induce vomiting or give diluents (egg whites, gelatin or water) to someone who is unconscious, having convulsions, or unable to swallow.

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of the label and MSDS to health professional with victim.

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## 5. FIRE-FIGHTING MEASURES

FLASH POINT: Not flammable.

AUTOIGNITION TEMPERATURE: NE.

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): NE.

Upper (UEL): NE.

FIRE EXTINGUISHING MATERIALS:

Water Spray: YES

Foam: YES

Halon: YES

Carbon Dioxide: YES

Dry Chemical: YES

Other: Any "ABC" Class.

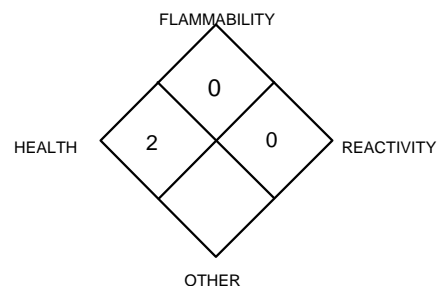
UNUSUAL FIRE AND EXPLOSION HAZARDS: This mixture is a primary irritant, is potentially corrosive, and presents a significant contact hazard to firefighters. Though the product is not flammable, explosive mixtures can form with air and under certain circumstances the vapors may ignite briefly; however, because of the high water content, ignition will not be sustained. Solvent vapors can travel to an ignition source and flash back. When involved in a fire, this material may decompose and produce caustic vapors and toxic gases (including carbon monoxide, carbon dioxide, hydrogen chloride, and nitrogen oxides).

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move fire-exposed containers, if it can be done without risk to firefighters. If possible, prevent run-off water from entering storm drains, bodies of water, or other environmentally sensitive areas. If necessary, discard or decontaminate fire response equipment using caustic-neutralizing agent before returning such equipment to service.

### NFPA RATING



**See Section 16 for  
Definition of Ratings**

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## 6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: In case of a release, clear the affected area, protect people, and respond with trained personnel. Uncontrolled releases should be responded to by appropriately trained personnel in proper personal protective equipment, using pre-planned procedures.

The proper personal protective equipment for incidental releases (e.g.-1 L of the product released in a well-ventilated area) use impermeable gloves, specific for the material handled, goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, specific for the material handled, chemically resistant suit and boots, and hard-hat. Self Contained Breathing Apparatus or respirator may be required where engineering controls are not adequate or conditions for potential exposure exist. When respirators are required, Select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with latest OSHA and/or ANSI recommendations.

Absorb spilled liquid with polypads or other suitable absorbent materials. Rinse residue with water. Decontaminate the area thoroughly. Place all spill residue in a suitable container. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (see Section 13, Disposal Considerations).

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## PART III *How can I prevent hazardous situations from occurring*

### 7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid breathing mists or sprays generated by this product. Use in a well-ventilated location. Wash thoroughly after using this material. Do not eat, drink, or smoke while handling this material. Remove contaminated clothing immediately. Use ventilation and other engineering controls to minimize potential exposure to this product.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Avoid breathing mists or sprays generated by this product. Use in a well-ventilated location.

**For Non-Bulk Containers**: Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers, or in a diked area, as appropriate. Store containers away from incompatible chemicals.

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## 7. HANDLING and STORAGE (Continued)

Keep container tightly closed when not in use. Wash thoroughly after using this material. Storage areas should be made of fire-resistant materials. If appropriate, post warning signs in storage and use areas. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Empty containers may contain residual liquid, therefore, empty containers should be handled with care.

**Bulk Containers:** All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

**Tank Car Shipments:** Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tank (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be clean and free of incompatible chemicals, prior to connection to the tank car or vessel. Valves and hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment before maintenance by a triple-rinse with water and dispose of according to applicable Federal, State, or local procedures.

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## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** If required use a corrosion-resistant ventilation system separate from other exhaust ventilation systems to ensure that there is no potential for overexposure to sprays, or mists of this product and that exposures are below those in section 2 (Composition and Information on Ingredients). Ensure eyewash/safety shower stations are available near areas where this product is used.

**RESPIRATORY PROTECTION:** Maintain airborne contaminant concentrations below exposure limits listed in Section 2 (Composition and Information on Ingredients). If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, or applicable State regulations. If adequate ventilation is not available or if there is potential for airborne exposure above the exposure limits (listed in Section 2) a respirator may be worn up to respirator exposure limitations, check with respirator equipment manufactures recommendations/limitations. For a higher level of protection use positive pressure supplied air respiration protection or Self Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.

**EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS:**

Positive pressure, full-facepiece Self Contained Breathing Apparatus; or positive pressure, full-facepiece Self Contained Breathing Apparatus with an auxiliary positive pressure Self Contained Breathing Apparatus.

**EYE PROTECTION:** Splash goggles or safety glasses. Face-shields are recommended when the operation can generate splashes, sprays or mists.

**HAND PROTECTION:** Wear appropriate gloves for routine industrial use. Use appropriate gloves for spill response, as stated in Section 6 of this MSDS (Accidental Release Measures).

**BODY PROTECTION:** Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from natural rubber are generally acceptable, depending upon the task.

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## 9. PHYSICAL and CHEMICAL PROPERTIES

**RELATIVE VAPOR DENSITY (air = 1):** NE

**SPECIFIC GRAVITY (water = 1):** 0.97 - 0.99

**SOLUBILITY IN WATER:** Completely soluble.

**VAPOR PRESSURE, mm Hg @ 25°C:** NE

**ODOR THRESHOLD:** Not available.

**LOG WATER/OIL DISTRIBUTION COEFFICIENT:** Not applicable.

**APPEARANCE AND COLOR:** This product is a colorless to light straw solution with a mild, benzaldehyde-like odor.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** The color and odor appearance may be a distinguishing characteristic of this product.

**EVAPORATION RATE (n-BuAc=1):** NE

**MELTING/FREEZING POINT:** NE

**BOILING POINT:** NE

**pH:** 6.0-8.0

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## 10. STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Thermal decomposition products of this mixture can include carbon monoxide, carbon dioxide, hydrogen chloride, and nitrogen oxides.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product reacts to strong reducers and strong oxidizers

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Avoid extremely high temperatures and incompatible chemicals.

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## **PART IV** *Is there any other useful information about this material?*

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### 11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following toxicology information is for this product in concentrated form no data exists for this product at the current dilution:

Acute LD<sub>50</sub> (oral, rat) 650 mg/kg for males and females combined.

Acute Dermal Rabbit greater than 2000 mg/kg

Primary Skin – Severe Irritant

Primary Eye – Corrosive

SUSPECTED CANCER AGENT: The product's components are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA and are, therefore, not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: This mixture is severely irritating to contaminated tissue and can cause chemical burns.

SENSITIZATION TO THE PRODUCT: This product is not known to cause skin or respiratory sensitization reactions in humans after prolonged or repeated exposures.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: This product is not reported to produce mutagenic effects in humans. Human mutation data are available for Ethanol, a trace component of this product; these data were obtained when high concentrations of this substance were exposed to specific human tissues.

Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.

Teratogenicity: This product is not reported to cause teratogenic effects in humans. Though Ethanol (a trace component of this product) is known to cause birth defects in humans when ingested in alcoholic beverages, ingestion is not anticipated to be a significant route of exposure for this product.

Reproductive Toxicity: This product is not reported to cause reproductive effects in humans.

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.*

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin disorders can be aggravated by over-exposure to this mixture. Inhalation of this product may aggravate respiratory conditions.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate over-exposure to this product. Probable mucosal damage may contraindicate the use of gastric lavage after ingestion exposures to this product. Measures against circulatory shock as well as oxygen and measures to support breathing manually or mechanically may be needed. If persistent, convulsions may be controlled by the cautious intravenous injection of a short acting-barbiturate drug.

BIOLOGICAL EXPOSURE INDICES: Currently, Biological Exposure Indices (BEIs) are not applicable to components of this product.

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## 12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: The components of this product are relatively stable in the environment. The following environmental data are available for the components of this product over 1 percent by weight:

Not available

EFFECT OF MATERIAL ON PLANTS or ANIMALS: This product is harmful or fatal to plant and animal life if released into the environment. Refer to section 11 (Toxicology Information) for additional toxicity data.

EFFECT OF CHEMICAL ON AQUATIC LIFE: This product is toxic to fish. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of the National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. The following aquatic toxicity data are available for the product and its components of this product over 1 percent by weight: Not available.

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## 13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

EPA WASTE NUMBER: Not applicable.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticides, spray, or mixture of rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact the State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA regional Office for guidance.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by State or local authorities by burning. If product is burned, stay out of smoke.

Metal Container: Triple rinse (or equivalent), then offer for recycling or reconditioning, or dispose of in a sanitary landfill, or by other procedures approved by state or local authorities.

Containers Under 1-Gallon or Less in Size: Do not reuse empty container (bottle, can, bucket). Wrap container and put in trash.

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## 14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Disinfectant Liquid Corrosive NOS (Quaternary Ammonium Compound),

HAZARD CLASS NUMBER and DESCRIPTION: 8 Corrosive.

UN IDENTIFICATION NUMBER: UN1903.

PACKING GROUP: PG III.

DOT LABEL(S) REQUIRED: Corrosive

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 153

MARINE POLLUTANT: This product does not contain any components which are designated by the Department of Transportation to be Marine Pollutants. (49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

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## 15. REGULATORY INFORMATION

SARA REPORTING REQUIREMENTS: The components of this product are not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

U.S. SARA THRESHOLD PLANNING QUANTITY: Not applicable.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Not applicable.

CANADIAN DSL INVENTORY: The components of this product are listed on the DSL Inventory.

U.S. TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.

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## 15. REGULATORY INFORMATION (Continued)

OTHER U.S. FEDERAL REGULATIONS: This is an EPA Regulated Pesticide.

STATE REGULATORY INFORMATION: Components of this product over 1% are covered under specific State regulations, as denoted below:

**California Proposition 65** – Components present in this material which the state of California has found to cause cancer, birth defects or other reproductive harm are as follows:

<u>Chemical name</u>	<u>CAS No.</u>	<u>Typical Maximum Concentration</u>
Benzyl chloride	100-44-7	Trace

**Massachusetts Right-to-know** – The following components of this material are included in the Massachusetts Substance List and are present at or above reportable levels:

<u>Chemical name</u>	<u>CAS No.</u>	<u>Typical Maximum Concentration</u>
Ethanol	64-17-5	Trace
Benzyl chloride	100-44-7	Trace

**Michigan Critical Materials** – The following components of this material are included in the Michigan Critical Materials List:

<u>Chemical name</u>	<u>CAS No.</u>	<u>Typical Maximum Concentration</u>
None known		

**New Jersey Right-to-know** – The following components of this material are included in the New Jersey Hazardous Substance List and are present at or above reportable levels:

<u>Chemical name</u>	<u>CAS No.</u>	<u>Typical Maximum Concentration</u>
N-Alkyl(C12-C18) dimethyl benzyl ammonium chloride	68391-01-05	5%
N-Alkyl(C12-C18) dimethyl ethylbenzyl ammonium chloride	68956-79-6	5%
Ethanol	64-17-5	Trace

**Pennsylvania Right-to-know** – The following components of this material are included in the Pennsylvania Hazardous Substance List and are present at or above reportable levels:

<u>Chemical name</u>	<u>CAS No.</u>	<u>Typical Maximum Concentration</u>
Ethanol	64-17-5	Trace

**Please note that it is a violation of Federal Law to use this product in a manner inconsistent with its labeling. The following section is for information only, see product container label for pesticide labeling instructions and use instructions.**

LABELING (Precautionary Statements): **DANGER!** HAZARDOUS TO HUMANS AND DOMESTIC ANIMALS. KEEP OUT OF REACH OF CHILDREN. CORROSIVE. CAUSES SEVERE EYE AND SKIN DAMAGE. HARMFUL OR FATAL IF SWALLOWED. Do not get into eyes, on skin or clothing. Avoid breathing mists or sprays. Do not take internally. Avoid contamination of food. Use with adequate ventilation and employ respiratory protection when exposed to mists or sprays. When handling, wear chemical splash goggles, face shield, rubber gloves and protective clothing. Do not transfer to unlabeled containers. Wash thoroughly after handling. Keep container closed when not in use. FIRST-AID: In case of contact, immediately flush skin or eyes for at least 15 minutes. If inhaled, move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If ingested, do not induce vomiting. Get medical attention. IN CASE OF FIRE: Use water, dry chemical, CO<sub>2</sub> or alcohol foam. IN CASE OF SPILL: Absorb with an inert material. Refer to MSDS for additional information.

CANADIAN WHMIS SYMBOLS:

**WHMIS Classification:** E, D2B. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

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## 16. OTHER INFORMATION

### INFORMATION SOURCE:

CHEMICAL SAFETY ASSOCIATES, Inc.

### PREPARED BY:

BASIC CHEMICAL SOLUTIONS

THIS INFORMATION IS DRAWN FROM RECOGNIZED SOURCES BELIEVED TO BE RELIABLE. BASIC CHEMICAL SOLUTIONS MAKES NO GUARANTEES NOR ASSUMES ANY LIABILITY IN CONNECTION WITH THIS INFORMATION. THE USER SHOULD BE AWARE OF CHANGING TECHNOLOGY, RESEARCH, REGULATIONS AND ANALYTICAL PROCEDURES THAT MAY REQUIRE CHANGES HEREIN. THE ABOVE DATA IS SUPPLIED UPON THE CONDITION THAT PERSONS WILL EVALUATE THIS INFORMATION AND THEN DETERMINE ITS SUITABILITY FOR THEIR USE.
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## DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

**CAS #:** This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching.

### EXPOSURE LIMITS IN AIR:

**ACGIH** - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits.

**TLV - Threshold Limit Value** - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour **Time Weighted Average (TWA)**, the 15-minute **Short Term Exposure Limit**, and the instantaneous **Ceiling Level**. Skin adsorption effects must also be considered.

**OSHA** - U.S. Occupational Safety and Health Administration.

**PEL - Permissible Exposure Limit** - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL which was vacated by Court Order.

**IDLH - Immediately Dangerous to Life and Health** - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). NIOSH issues exposure guidelines called **Recommended Exposure Levels (RELs)**. When no exposure guidelines are established, an entry of **NE** is made for reference.

### FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the **National Fire Protection Association (NFPA)**. **LEL** - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL** - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

### TOXICOLOGICAL INFORMATION:

Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD<sub>50</sub>** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC<sub>50</sub>** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m<sup>3</sup>** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause death. **BEI** - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

### REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Other acronyms used are: **Superfund Amendments and Reauthorization Act (SARA)**; the **Toxic Substance Control Act (TSCA)**; Marine Pollutant status according to the **DOT**; California's Safe Drinking Water Act (**Proposition 65**); the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)**; and various state regulations. This section also includes information on the precautionary warnings which appear on the materials package label.