Tris-Borate-EDTA buffer, 5X

sc-296652

Material Safety Data Sheet

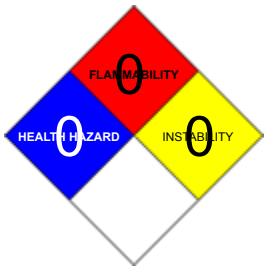
Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Tris-Borate-EDTA buffer, 5X

STATEMENT OF HAZARDOUS NATURE
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C14H30BN3O14, laboratory, reagent

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability	0		
Toxicity	0		
Body Contact	0		
Reactivity	0		
Chronic	3		

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

May impair fertility.
May cause harm to the unborn child.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ The material has NOT been classified as "harmful by ingestion".
This is because of the lack of corroborating animal or human evidence.

EYE

■ Although the liquid is not thought to be an irritant, direct contact with the eye may produce transient discomfort characterized by tearing or conjunctival redness (as with windburn).

SKIN

■ The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models).
Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ Not normally a hazard due to non-volatile nature of product.
■ The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified using animal models).
Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS

■ Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material.
■ Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material.
■ Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
There is some evidence to provide a presumption that human exposure to the material may result in impaired fertility on the basis of some evidence in animal studies of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects but which is not a secondary non-specific consequence of other toxic effects.
Borate can accumulate in the testes and deplete germ cells and cause withering of the testicles, according to animal testing. Hair loss, skin inflammation, stomach ulcer and anemia can all occur.
Injection of EDTA and it salts can cause severe kidney damage with tissue death and internal bleeding, bone marrow depression and critically low levels of calcium.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
tris(hydroxymethyl)aminomethane	77-86-1	5.4
boric acid	10043-35-3	2.8
EDTA disodium salt	139-33-3	0.4

Edetate disodium dyhdrate	6381-92-6	0.35

Section 4 - FIRST AID MEASURES

SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Center or a doctor.

EYE

If this product comes in contact with eyes

- Wash out immediately with water.
- If irritation continues, seek medical attention.

SKIN

If skin or hair contact occurs

- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

■ Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG)	Not Available
Upper Explosive Limit (%)	Not Applicable
Specific Gravity (water=1)	Not Available
Lower Explosive Limit (%)	Not Applicable

EXTINGUISHING MEDIA

The product contains a substantial proportion of water, therefore there are no restrictions on the type of **EXTINGUISHING MEDIA** which may be used. Choice of **EXTINGUISHING MEDIA** should take into account surrounding areas.

Though the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances.

In such an event consider

- foam.
- dry chemical powder.
- carbon dioxide.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Non combustible.
- Not considered to be a significant fire risk.

Decomposition may produce toxic fumes of carbon dioxide (CO_2), nitrogen oxides (NO_x), metal oxides, other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

FIRE INCOMPATIBILITY

None known.

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May emit poisonous fumes.

FIRE INCOMPATIBILITY

None known.

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapors and contact with skin and eyes.

MAJOR SPILLS

Moderate hazard.

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS

- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
Canada - British Columbia Occupational Exposure Limits	tris(hydroxymethyl)aminomethane (Diesel fuel, as total hydrocarbons, Inhalable)		100 (V)						Skin

Canada - British Columbia Occupational Exposure Limits	tris(hydroxymethyl)aminomethane (Kerosene /Jet fuels, as total hydrocarbon vapour, Revised 2003)	200 (P)		Skin
Canada - Alberta Occupational Exposure Limits	tris(hydroxymethyl)aminomethane (Kerosene/Jet fuels, as total hydrocarbon vapour)	200		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	tris(hydroxymethyl)aminomethane (Diesel fuel as total hydrocarbons, (vapour))	100	150	Skin
Canada - Alberta Occupational Exposure Limits	tris(hydroxymethyl)aminomethane (Diesel fuel, as total hydrocarbons)	100		
Canada - Ontario Occupational Exposure Limits	tris(hydroxymethyl)aminomethane (Particles (Insoluble or Poorly Soluble) Not Otherwise)	10 (I)		
Canada - British Columbia Occupational Exposure Limits	tris(hydroxymethyl)aminomethane (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))	10 (N)		
Canada - Ontario Occupational Exposure Limits	tris(hydroxymethyl)aminomethane (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées par ailleurs)	3 (R)		
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	tris(hydroxymethyl)aminomethane (Particulates not otherwise regulated Respirable fraction)	5		
US - California Permissible Exposure Limits for Chemical Contaminants	tris(hydroxymethyl)aminomethane (Particulates not otherwise regulated Respirable fraction)	5		(n)

US - Oregon Permissible Exposure Limits (Z-1)	tris(hydroxymethyl)aminomethane (Particulates not otherwise regulated (PNOR) (f) Total Dust)	-	10		Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”
US - Michigan Exposure Limits for Air Contaminants	tris(hydroxymethyl)aminomethane (Particulates not otherwise regulated, Respirable dust)		5		
US - Oregon Permissible Exposure Limits (Z-1)	tris(hydroxymethyl)aminomethane (Particulates not otherwise regulated (PNOR) (f) Respirable Fraction)	-	5		Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	tris(hydroxymethyl)aminomethane (Particulates not otherwise regulated (PNOR)(f)- Respirable fraction)		5		
Canada - Prince Edward Island Occupational Exposure Limits	tris(hydroxymethyl)aminomethane (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)		10		See Appendix B current TLV/BEI Book
US ACGIH Threshold Limit Values (TLV)	boric acid (Boric acid)		2	6	TLV Basis/Critical Effect(s) irritation (eyes, nose, respirtory tract, skin); reproductive;

				developmental
Canada - Prince Edward Island Occupational Exposure Limits	boric acid (Boric acid)	2	6	TLV Basis/Critical Effect(s) irritation (eyes, nose, respirtory tract, skin); reproductive; developmental
Canada - Nova Scotia Occupational Exposure Limits	boric acid (Boric acid)	2	6	TLV Basis/Critical Effect(s) irritation (eyes, nose, respirtory tract, skin); reproductive; developmental
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)	boric acid (BORON AND COMPOUNDS)	0.01		
Canada - British Columbia Occupational Exposure Limits	boric acid (Borate compounds, Inorganic, Inhalable Revised 2005)	2	6	
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	boric acid (Borate compounds, inorganic (inhalable fraction++))	2	6	

The following materials had no OELs on our records

• EDTA disodium salt	CAS139-33-3 CAS69772-70-9
• water	CAS7732-18-5

PERSONAL PROTECTION

RESPIRATOR

•Particulate. (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with side shields
- Chemical goggles.

HANDS/FEET

Wear chemical protective gloves, eg. PVC.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

ENGINEERING CONTROLS

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear an approved respirator.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Mixes with water.

State	Liquid	Molecular Weight	475.21
Melting Range (°F)	Not Available	Viscosity	Not Available
Boiling Range (°F)	Not Available	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not Applicable	pH (1% solution)	Not Available
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not Available
Autoignition Temp (°F)	Not Applicable	Vapour Pressure (mmHG)	Not Available
Upper Explosive Limit (%)	Not Applicable	Specific Gravity (water=1)	Not Available
Lower Explosive Limit (%)	Not Applicable	Relative Vapor Density (air=1)	Not Applicable
Volatile Component (%vol)	Not Available	Evaporation Rate	Not Available

APPEARANCE

Colourless, odourless liquid; mixes with water.

Because of their structure, all the substances are highly soluble in water, have very low vapor pressures, possess relatively low partition coefficients (log Kow's), and similar dissociation constants, making them likely to remain dissolved in the water compartment upon the event of an environmental release, where biodegradation is ultimately expected. MacKay Level III fugacity modeling predicts that TRIS AMINO and the surrogate substances will tend to partition predominately to water There is also a low potential to bioaccumulate in aquatic organisms based on low log Kow values. The high water solubility and negligible vapor pressure of all three substances support the low estimated Henry's Law Constants (4.54x10-8 and 6.48x10-10 Pa m3/mol for TRIS AMINO and AMP, respectively, and 8.67 x10-13 atm-m3/mole for AMPD)

Material	Value

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

¦ None known.

For incompatible materials - refer to Section 7 - Handling and Storage.

5 X TBE

TOXICITY AND IRRITATION

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

EDTA DISODIUM SALT

TRIS(HYDROXYMETHYL)AMINOMETHANE

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

5 X TBE

Not available. Refer to individual constituents.

TRIS(HYDROXYMETHYL)AMINOMETHANE

TOXICITY	IRRITATION
Oral (rat) LD50 5900 mg/kg	Nil Reported

For tris(hydroxymethyl)aminomethane (TRIS AMINO; CAS 77-88-1) and its surrogates 2-amino-2-methyl-1,3-propanediol (AMPD; CAS 115-69-5) and monoisobutanolamine (AMP; CAS 124-68-5)

TRIS AMINO and the surrogate chemicals have displayed little if any toxicity to humans during their long history of use as human drugs and/or in personal care products and cosmetics. TRIS AMINO has found use as an IV drug for the management of acidosis in humans for many years and the toxicity of AMPD and AMP have been reviewed by the Cosmetic Ingredient Review Expert Panel which concluded that these materials are safe as used in cosmetic formulations up to 1%

Acute toxicity Mammalian toxicity studies have displayed similar results. The oral LD50 value for TRIS AMINO is 5500 mg/kg in the mouse, and its surrogates range from 2150 to greater than 5000 mg/kg in the rat and mouse. TRIS AMINO was non-irritating to eyes when a 40% aqueous solution was applied to the eyes of rabbits (pH 10.4 for 0.1M aqueous solution). In contrast, 95% AMP in water was severely irritating to the eyes, presumably due to the severely alkaline pH of the test solution used (pH 11.3 for 0.1M aqueous solution); however, more neutral cosmetic formulations containing lower concentrations of AMP are only minimally irritating. There is no sensitisation data available for TRIS AMINO; however, based on the following data, TRIS AMINO is not expected to be a sensitiser. Laboratory animal test samples of AMP did not cause allergic skin reactions when tested in guinea pigs following topical or intradermal administration. In patch tests with humans, AMP and cosmetic formulations containing either AMP or AMPD were negative for dermal sensitisation.

Repeated dose toxicity Repeated-dose mammalian toxicity studies conducted on TRIS AMINO and the two surrogate chemicals indicate that the compounds are generally well-tolerated at concentrations as high as 500 mg/kg/day via IV infusion for TRIS AMINO and ingestion of up to 3200 ppm in the rodent diet (250-750 mg/kg/day for rats and mice, estimated). A number of human clinical trials of the IV infusion of TRIS AMINO have also been successfully conducted. In all studies, the only target tissue, when observed at all, has been the liver with AMP. Human clinical studies with Keterolac(a major component of which is TRIS AMINO) have suggested that patients with decreased liver function not be given the drug over extended treatment periods based upon changes in several clinical chemistry parameters. Ingestion of relatively high dosages of AMP has caused liver histopathological changes in rats and dogs. The most significant toxicological activity has been a foetotoxic effect of AMP when ingested at relatively high levels by pregnant rats. Subsequent dermal exposure to comparable dosages failed to elicit a developmental effect in rats. Overall, there have been no consistently-noted observations or treatment-related findings among the numerous repeated-dose mammalian toxicity studies that have been conducted over at last 50 years on these compounds that would indicate long-term significant toxicity of either compound at typical human exposure levels. Reflective of these findings is the fact that both TRIS AMINO and

AMP display similar patterns of excretion from the body, being primarily eliminated unchanged via the urine over a relatively short period of time. Further, no evidence of either direct reactivity or metabolism to reactive species toward genetic material has been observed. Genetic toxicity Studies conducted on the TRIS AMINO and the surrogate substances in the presence or absence of mammalian metabolic enzymes have all been negative.

TOXICITY	IRRITATION
BORIC ACID	
Oral (woman) LDLo 200 mg/kg	Skin (human) 15 mg/3d -I- Mild
Oral (rat) LD50 2660 mg/kg	
Inhalation (rat) LCLo 28 mg/m³/4h	
Dermal (man) LDLo 2430 mg/kg	

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

EDTA DISODIUM SALT

Oral (Rat) LD50 2000 mg/kg

Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's edema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type.

For ethylenediaminetetraacetic acid (EDTA) and its salts

EDTA is a strong organic acid (approximately 1000 times stronger than acetic acid). It has a high affinity for alkaline-earth ions (for example, calcium and magnesium) and heavy-metal ions (for example, lead and mercury). This affinity generally results in the formation of highly stable and soluble hexadentate chelate complexes. EDTA's ability to complex is used commercially to either promote or inhibit chemical reactions, depending on application.

EDTA and its salts are expected to be absorbed by the lungs and gastrointestinal tract; absorption through the skin is unlikely.

In general, EDTA and its salts are mild skin irritants but considered severe eye irritants. The greatest risk in the human body will occur when the EDTA attempts to scavenge the trace metals used and required by the body.

The binding of divalent and trivalent cations by EDTA can cause mineral deficiencies, which seem to be responsible for all of the known pharmacological effects. Sensitivity to the toxic effects of EDTA is, at least in part, related to the deficiency of zinc.

Several short term studies, reported no adverse effects from administering doses up to 5% of EDTA and its salts to lab rodents daily and for several weeks. Only diarrhoea and lowered food consumption were reported in animals given 5% disodium EDTA. However, abnormal effects were seen in animals that were fed mineral deficient diets. Abnormal symptoms were observed in male and female rats fed a low mineral diet (0.54% Ca and 0.013%Fe) with the addition of 0%, 0.5%, or 1% disodium EDTA for 205 days. Rats fed a low percent of disodium EDTA in the diet for short term studies with adequate minerals showed no signs of toxicity. Rats fed 0.5% disodium EDTA for 44-52 weeks were without deleterious effects on weight gain, appetite, activity and appearance. Rats fed 1% disodium EDTA with adequate mineral diet for 220 days showed no evidence of dental erosion.

EDTA and its salts are eliminated from the body, 95% via the kidneys and 5% by the bile, along with the metals and free ionic calcium which was bound in transit through the circulatory system.

Trisodium EDTA was tested in a bioassay for carcinogenicity by the National Cancer Institute. Trisodium EDTA administered to male and female rats at low (3,750 ppm) or high (7,500 ppm) concentrations for 103 weeks produced no compound-related signs of chemical toxicity, and tumor incidence was not related to treatment .

EDTA and its salts should not pose a teratogenic concern based on previous studies in lab rodents. Study results indicate no teratogenic effects are likely in lab rodents at doses up to 1000 mg/kg. Adequate minerals in the diet and administration of tap water prevented possible teratogenic effects of EDTA during pregnancy.

Teratogenic effects observed in lab rodents were likely due to animals maintained on deionised water and a semi-purified diet, and housed in nonmetallic caging. Infants and children will unlikely be exposed to high concentrations as in lab rodents.

Rats given 1250 mg/kg or 1500 mg/kg by gavage exhibited more maternal toxicity than the diet group, but produced only 21% malformations in the offspring at the lower dose. The subcutaneously administration of 375 mg/kg was also maternally toxic, but did not result in malformations in the offspring. Differences in toxicity and teratogenicity are probably related to absorption differences and interaction with metals. Disodium EDTA ingested during pregnancy is teratogenic in rats at 2% in the diet and greater.

The maximum human consumption of EDTA and its salts in foods was reported to be in the order of 0.4 mg/kg/day. Infants and children also generally drink tap water instead of deionised or distilled water. Even if young infants were to be fed some solid food, given the characteristics of EDTA and its salts, residues are not likely to be present at concentrations for potential sensitivity.

WATER

No significant acute toxicological data identified in literature search.

CARCINOGEN

VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; IARC; NTP 11th ROC
Acid mists, strong inorganic	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	1
Boric acid	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A4
TWAMG_M3~	US - Maine Chemicals of High Concern List	Carcinogen	A4
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	

SKIN

tris(hydroxymethyl)aminomethane	Canada - British Columbia Occupational Exposure Limits - Skin	Notation	Skin
tris(hydroxymethyl)aminomethane	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1

Section 12 - ECOLOGICAL INFORMATION

No data

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Puncture containers to prevent re-use and bury at an authorized landfill.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

Regulations for ingredients

tris(hydroxymethyl)aminomethane (CAS: 77-86-1) is found on the following regulatory lists;

"Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS

(English)","GESAMP/EHS Composite List - GESAMP Hazard Profiles","International Council of Chemical Associations (ICCA) - High Production Volume List","International Fragrance Association (IFRA) Survey: Transparency List","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA High Production Volume Program Chemical List","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

boric acid (CAS: 10043-35-3,11113-50-1,41685-84-1) is found on the following regulatory lists;

"Canada - Nova Scotia Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens","Canada Ingredient Disclosure List (SOR/88-64)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","GESAMP/EHS Composite List - GESAMP Hazard Profiles","International Chemical Secretariat (ChemSec) REACH SIN* List (*Substitute It Now!) 1.1","US - Maine Chemicals of High Concern List","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) - Carcinogens","US Cosmetic Ingredient Review (CIR) Cosmetic ingredients found safe, with qualifications","US DOE Temporary Emergency Exposure Limits (TEELs)","US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use Only as Components of Adhesives - Adhesives","US Food Additive Database","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

EDTA disodium salt (CAS: 139-33-3,69772-70-9) is found on the following regulatory lists;

"Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","FEMA Generally Recognized as Safe (GRAS) Flavoring Substances 24 - Primary Names and Synonyms","International Council of Chemical Associations (ICCA) - High Production Volume List","US Cosmetic Ingredient Review (CIR) Cosmetic ingredients found safe as used","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA High Production Volume Program Chemical List","US Food Additive Database","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

water (CAS: 7732-18-5) is found on the following regulatory lists;

"Canada Domestic Substances List (DSL)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","IMO IBC Code Chapter 18: List of products to which the Code does not apply","International Fragrance Association (IFRA) Survey: Transparency List","US - Pennsylvania - Hazardous Substance List","US DOE Temporary Emergency Exposure Limits (TEELs)","US NFPA 30B Manufacture and Storage of Aerosol Products - Chemical Heat of Combustion","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory","US TSCA Section 8 (a) Inventory Update Rule (IUR) - Partial Exemptions"

No data for 5 X TBE (CW: 4644-52)

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

■ Cumulative effects may result following exposure*.

* (limited evidence).

Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
EDTA disodium salt	139- 33- 3	Xn; R22

Ingredients with multiple CAS Nos

Ingredient Name	CAS
boric acid	10043-35-3, 11113-50-1, 41685-84-1
EDTA disodium salt	139-33-3, 69772-70-9

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available

engineering controls must be considered.

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