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Revision Number 2

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier**Product Name** TBE Dry Powder Buffer**Other means of identification****Product Code(s)** 0478**Synonyms** No information available**Recommended use of the chemical and restrictions on use****Recommended Use** For Further Manufacturing Use Only.**Uses advised against** Not for Human or Animal Drug Use**Details of the supplier of the safety data sheet****Company Address** **Manufacturer Address**VWR International, LLC
Radnor Corporate Center
100 Matsonford Road
Radnor, PA 19087-8660VWR International, LLC
28600 Fountain Parkway
Solon, Ohio 44139**Company Phone Number**

1-800-448-4442

E-mail Address

info@amresco-inc.com

Emergency Telephone Number**Emergency Telephone Number** Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification**OSHA Regulatory Status**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Reproductive toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3

Label elements**Emergency Overview****Danger****Hazard statements**

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H330 - Fatal if inhaled

H360 - May damage fertility or the unborn child

May cause respiratory irritation. May cause drowsiness or dizziness

**Appearance** White**Physical State** Powder**Odor** No information available**Precautionary Statements - Prevention**

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Wear protective gloves/protective clothing/eye protection/face protection

Do not breathe dust/fume/gas/mist/vapors/spray

Use only outdoors or in a well-ventilated area

Wear respiratory protection

Wash face, hands and any exposed skin thoroughly after handling

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention

Specific treatment is urgent (see .? on this label)

Specific treatment (see .? on this label)

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention

IF ON SKIN: Wash with plenty of water and soap

If skin irritation occurs: Get medical advice/attention

Take off contaminated clothing and wash it before reuse

IF INHALED: Remove person to fresh air and keep comfortable for breathing

Immediately call a POISON CENTER or doctor

Precautionary Statements - Storage

Store locked up

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

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not regulated

Other Information

- May be harmful if swallowed
- Toxic to aquatic life with long lasting effects
- Harmful to aquatic life

Unknown Acute Toxicity

0 % of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	EC No.	Weight %	Trade Secret
Tris (hydroxymethyl)aminomethane	77-86-1	201-064-4	60-65	Not applicable
Boric acid (H3BO3)	10043-35-3	233-139-2	20-40	Not applicable
EDTA	60-00-4	200-449-4	1-5	Not applicable

4. FIRST AID MEASURES**First Aid Measures**

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin Contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation Move to fresh air. If not breathing, give artificial respiration.

Ingestion Never give anything by mouth to an unconscious person. Rinse mouth.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms/Effects No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media No information available.

Specific Hazards Arising from the Chemical

No information available.

Hazardous Combustion Products Carbon oxides. Nitrogen oxides (NOx).

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal protection Ensure adequate ventilation, especially in confined areas.

Environmental Precautions

Environmental Precautions See Section 12 for additional Ecological information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Avoid dust formation. Pick up and transfer to properly labeled containers. Ventilate area and wash spill site after material pickup is complete.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling Handle in accordance with good industrial hygiene and safety practice. Hygroscopic.

Protect from moisture.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Hygroscopic. Protect from moisture.

Incompatible Products Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Tris (hydroxymethyl)aminomethane 77-86-1	-	-	-
Boric acid (H3BO3) 10043-35-3	6 mg/m ³ STEL (inhalable fraction, listed under Borate compounds, inorganic) TWA: 2 mg/m ³	-	-
EDTA 60-00-4	-	-	-

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Avoid contact with eyes. Safety glasses with side-shields.

Skin and Body Protection Wear protective gloves/clothing.

Respiratory Protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Powder		
Appearance	White	Odor	No information available
Color	No information available	Odor Threshold	No information available
Property	Values	Remarks • Method	
pH	No information available		
Melting point/freezing point			
Boiling Point/Range	No information available		
Flash Point (High in °C)	No information available		
Evaporation Rate	No information available		
Flammability (solid, gas)	No information available		
Flammability Limit in Air			
Upper flammability limit:	No information available		
Lower flammability limit:	No information available		
Vapor pressure	No information available		
Vapor Density	No information available		
Specific Gravity	No information available		

Water Solubility	No information available
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Kinematic viscosity	No information available
Dynamic viscosity	No information available
Explosive Properties	No information available
Oxidizing Properties	No information available

Other Information

Softening Point	No information available
Molecular Weight	No information available
VOC Content	No information available
Density	No information available
Bulk Density	No information available

10. STABILITY AND REACTIVITY**Reactivity**

No data available

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Protect from moisture.

Incompatible Materials

Strong oxidizing agents.

Hazardous Decomposition Products

Carbon oxides. Nitrogen oxides (NOx).

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Product Information	Irritating to eye, skin and respiratory system
Inhalation	May be fatal if inhaled.
Eye Contact	Severely irritating to eyes.
Skin Contact	Irritating to skin.
Ingestion	There is no data available for this product.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tris (hydroxymethyl)aminomethane 77-86-1	= 5900 mg/kg (Rat)	-	-
Boric acid (H3BO3) 10043-35-3	= 2660 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 0.16 mg/L (Rat) 4 h
EDTA 60-00-4	= 1700 mg/kg (Rat)	-	-

Information on toxicological effects

Symptoms	No information available.
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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization

No information available.

Mutagenic Effects

No information available.

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Tris (hydroxymethyl)aminomethane 77-86-1	-	-	-	-
Boric acid (H3BO3) 10043-35-3	-	Group 2A	-	-
EDTA 60-00-4	-	-	-	-

Reproductive Toxicity

No information available.

STOT - single exposure

No information available.

STOT - repeated exposure

No information available.

Target Organ Effects

Liver, Kidneys, Central nervous system (CNS).

Aspiration hazard

No information available.

Numerical measures of toxicity - Product Information**Unknown Acute Toxicity**

0 % of the mixture consists of ingredient(s) of unknown toxicity

The following values are calculated based on chapter 3.1 of the GHS document . mg/kg mg/L

12. ECOLOGICAL INFORMATION**Ecotoxicity**

63.7% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Toxicity to Fish	Crustacea
Tris (hydroxymethyl)aminomethane 77-86-1	-	-	-
Boric acid (H3BO3) 10043-35-3	-	1020: 72 h Carassius auratus mg/L LC50 flow-through	115 - 153: 48 h Daphnia magna mg/L EC50
EDTA 60-00-4	1.01: 72 h Desmodesmus subspicatus mg/L EC50	44.2 - 76.5: 96 h Pimephales promelas mg/L LC50 static 34 - 62: 96 h Lepomis macrochirus mg/L LC50 static	113: 48 h Daphnia magna mg/L EC50 Static

Persistence and Degradability

No information available.

Bioaccumulation/Accumulation

No information available.

Chemical Name	Partition coefficient
Tris (hydroxymethyl)aminomethane 77-86-1	-
Boric acid (H3BO3) 10043-35-3	-0.757
EDTA 60-00-4	-

Other Adverse Effects

No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods****Waste Disposal Method**

Dispose of material in accordance with all federal, state, and local regulations.

Contaminated Packaging

Do not re-use empty containers.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Tris	-	-	-	-

(hydroxymethyl)aminomethane 77-86-1				
Boric acid (H3BO3) 10043-35-3	-	-	-	-
EDTA 60-00-4	-	-	-	-

Chemical Name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Tris (hydroxymethyl)aminomethane 77-86-1	-	-	-	-
Boric acid (H3BO3) 10043-35-3	-	-	-	-
EDTA 60-00-4	-	-	-	-

Chemical Name	California Hazardous Waste Status
Tris (hydroxymethyl)aminomethane 77-86-1	-
Boric acid (H3BO3) 10043-35-3	Toxic
EDTA 60-00-4	-

14. TRANSPORT INFORMATION

DOT Not regulated

ICATA Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	SARA 313 - Threshold Values %
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Tris (hydroxymethyl)aminomethane 77-86-1 (60-65)	-
Boric acid (H3BO3) 10043-35-3 (20-40)	-
EDTA 60-00-4 (1-5)	-

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Tris (hydroxymethyl)aminomethane 77-86-1	-	-	-	-
Boric acid (H3BO3) 10043-35-3	-	-	-	-
EDTA 60-00-4	-	-	-	-

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Tris (hydroxymethyl)aminomethane 77-86-1	-	-	-
Boric acid (H3BO3) 10043-35-3	-	-	-
EDTA 60-00-4	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ

U.S. State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

Chemical Name	California Prop. 65
Tris (hydroxymethyl)aminomethane - 77-86-1	-
Boric acid (H3BO3) - 10043-35-3	-
EDTA - 60-00-4	-

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Tris (hydroxymethyl)aminomethane 77-86-1	-	-	-
Boric acid (H3BO3) 10043-35-3	-	-	-
EDTA 60-00-4	X	-	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not regulated

16. OTHER INFORMATION

Issuing Date 09-Jun-2010

Revision Date 08-Jan-2016

Revision Note

No information available

Disclaimer

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. VWR International and its Affiliates shall not be held liable for any damage resulting from handling.

End of Safety Data Sheet