

PI-77720

Eng

Material Safety Data Sheet

Conforms to 93/112/EEC and ISO 11014-1

Responsible Name Company2

Section 1. Chemical Product and Company Identification

Product name **Bond Breaker™ TCEP Solution, Neutral pH**

Product No. 0077720

Supplier	In USA:	In Europe:	Manufacturer
	Pierce	Perbio Science	Pieroe Biotechnology
	P.O. Box 117	Industriestraße III	P.O. Box 117
	Rockford, IL 61105	Industrielaan 27	Rockford, IL 61105
	USA	9320 Erembodegem-Aalst	USA
	815.968.0747 or	Belgium	815.968.0747 or
	1.800.874.3723	Tel:+32 53 83 44 04	1.800.874.3723
		Fax:+32 53 83 76 38	

In Case of Emergency CHEMTREC:
800.424.9300
OUTSIDE US:
202.483.7616

Print Date 9/7/2005
Validation Date 9/7/2005
MSDS# 3975

Intended Use Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

Section 2. Composition, Information on Ingredients

Substance/Preparation : Preparation

Ingredient name	CAS number	%	EC number	Classification
TCEP:HCl	51805-45-9	10 - 20		C, R34

Section 3. Hazards Identification

United States Review the most current and approved institutional guideline, protocol, standard operating procedure(s) and MSDS(s) for the proper handling of institutional materials/equipment associated with the use of this product.

Emergency Overview Warning!
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
RESPIRATORY TRACT, SKIN, EYES.
Avoid contact with skin and clothing. Avoid breathing vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
Target organs Contains material which causes damage to the following organs: upper respiratory tract, skin, eyes.

Routes of Entry Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eyes Irritating to eyes.
Skin Irritating to skin.
Inhalation Irritating to respiratory system.
Ingestion No known significant effects or critical hazards.

Potential chronic health effects

Carcinogenic Effects Data CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.

Medical Conditions Aggravated by Overexposure: Repeated or prolonged exposure is not known to aggravate medical condition.
Overexposure /Signs/Symptoms Not available.

Continued on Next Page

Bond Breaker™ TCEP Solution, Neutral pH

Europe

Classification Xi; R36/38
Physical/chemical hazards Not applicable.
Human health hazards Irritating to eyes and skin.
Environmental hazards Not applicable.

See Toxicological Information (section 11)

Section 4. First Aid Measures

Notice to Reader Get immediate medical attention.
Effects and symptoms
Inhalation Non-irritant for lungs. Non-sensitizer for lungs. Non-corrosive for lungs.
Ingestion Non-hazardous in case of ingestion.
Skin Contact Hazardous in case of skin contact (irritant). Slightly hazardous in case of skin contact (corrosive). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Eye Contact Hazardous in case of eye contact (irritant). Non-corrosive to the eyes.
Aggravating conditions Repeated or prolonged exposure is not known to aggravate medical condition.

First-Aid Measures

Inhalation In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
Ingestion Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
Skin Contact In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Eye Contact In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
Notes to Physician Not available.
Protection of first-aiders Not available.

Section 5. Fire Fighting Measures

Flammability of the Product Non-flammable.
Flash Points Not applicable.
Fire Hazards in Presence of Various Substances Not applicable.
Fire Fighting Media and Instructions Use an extinguishing agent suitable for surrounding fires.
Protective Clothing (Fire) Not applicable.
Hazardous thermal (de)composition products Not applicable.

Section 6. Accidental Release Measures

Personal precautions Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Environmental Precautions and Clean-up Methods Absorb with an inert material and put the spilled material in an appropriate waste disposal.
Small Spill and Leak Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Continued on Next Page

Section 7. Handling and Storage

Handling Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Storage Keep container tightly closed. Keep container in a cool, well-ventilated area.

Intended Use Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

Packaging materials

Suitable / Not suitable Use original container.

Section 8. Exposure Controls/Personal Protection

Engineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits.

Exposure Limit Values

Ingredient Name

Occupational Exposure Limits

United States

Personal Protection

Eyes Splash goggles.

Body Lab coat.

Hands Gloves.

Respiratory Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

Protective Clothing
(Pictograms)



Section 9. Physical and Chemical Properties

Physical State and Appearance Liquid. Color Not available. Odor Not available.

Molecular Weight Not applicable. Taste Not available.

pH (1% Soln/Water) 6.6 [Neutral.]

Boiling/Condensation Point The lowest known value is 100°C (212°F) (Milli-Q Water).

Melting/Freezing Point May start to solidify at 0°C (32°F) based on data for: Milli-Q Water.

Specific Gravity The only known value is 1 (Water = 1) (Milli-Q Water).

Vapor Pressure The highest known value is 2.3 kPa (17.5 mm Hg) (at 20°C) (Milli-Q Water).

Vapor Density The highest known value is 0.62 (Air = 1) (Milli-Q Water).

Evaporation Rate 0.36 (Milli-Q Water) compared to Butyl acetate.

Dispersion Properties See solubility in water.

Solubility Partially soluble in cold water, hot water.

Continued on Next Page

Section 10. Stability and Reactivity

Stability and Reactivity The product is stable.

Conditions to avoid Not available.

Materials to avoid Reactive with oxidizing agents.

Hazardous Polymerization Slightly reactive to reactive with organic materials. Will not occur.

Hazardous Decomposition Products These products are halogenated compounds, hydrogen chloride.

Section 11. Toxicological Information

Toxicity to Animals **Milli-Q Water:**
ORAL (LD50): Acute: >90000 mg/kg [Rat].

Propanoic acid, 3,3',3''-phosphinidynetris-, hydrochloride:

ORAL (LD50): Acute: 3500 mg/kg [Rat].

DERMAL (LD50): Acute: >3000 mg/kg [Rabbit].

Chronic Effects on Humans Contains material which causes damage to the following organs: upper respiratory tract, skin, eyes.

Other Toxic Effects on Humans Hazardous in case of eye contact (irritant). Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-sensitizer for lungs. Non-corrosive to the eyes. Non-corrosive for lungs.

Special Remarks on Toxicity to Animals Not available.

Special Remarks on Chronic Effects on Humans Not available.

Special Remarks on Other Toxic Effects on Humans Material is corrosive to the mucous membranes. Prolonged contact can cause severe irritation or even burns. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Exposure can cause lung irritation, chest pain and edema which may be fatal. Exposure can cause nausea, headache and vomiting. (Propanoic acid, 3,3',3''-phosphinidynetris-, hydrochloride)

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Reproductive toxicity No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Skin No known significant effects or critical hazards.

Target organs Contains material which causes damage to the following organs: upper respiratory tract, skin, eyes.

Section 12. Ecological Information

Mobility Not available.

Persistence/degradability Not available.

Bioaccumulative potential Not available.

Ecotoxicity Not available.

Germany water class VCI WGK: No products were found.

Ecotoxicity data

Ingredient name

Species

Period

Continued on Next Page

**Bond Breaker™ TCEP Solution,
Neutral pH**

Page: 5/7

Other ecological information

Persistence/degradability

Ingredient name BOD₅ COD

Ingredient name Aquatic half-life Photolysis

Bioaccumulative potential

Ingredient name LogP_{ow} BCF

Mobility : Not available.

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

Section 13. Disposal Considerations

Waste Stream Not available.

Methods of disposal The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. 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.

European waste catalogue (EWC) Not available.

Hazardous waste The classification of the product may meet the criteria for a hazardous waste

Denmark - Carcinogenic waste Not available.

Denmark - Waste card number Not available.

Denmark - Waste group Not available.

Sweden - thermoset plastic waste Not available.

Sweden - Waste group Not available.

Austria - Waste catalogue Not available.

Norway - Waste number Not available.

Norway - Hazardous waste The classification of the product may meet the criteria for a hazardous waste

Switzerland - Waste code Not available.

Section 14. Transport Information

Contact the supplier for all information regarding the proper transportation method for this material.

Section 15. Regulatory Information

**Label Requirements
(Europe)**

R36/38- Irritating to eyes and skin.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Continued on Next Page

**Bond Breaker™ TCEP Solution,
Neutral pH**

Page: 6/7



**HCS Classification Irritating material
Target organ effects**

U.S. Federal Regulations TSCA 8(b) inventory: Mill-Q Water
SARA 302/304/311/312 extremely hazardous substances: No products were found
SARA 302/304 emergency planning and notification: No products were found
SARA 302/304/311/312 hazardous chemicals: No products were found
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found
Clean Water Act (CWA) 307: No products were found
Clean Water Act (CWA) 311: No products were found
Clean air act (CAA) 112 accidental release prevention: No products were found
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found

State regulations No products were found.

WHMIS (Canada) Class D-2B Material causing other toxic effects (TOXIC)
Class E Corrosive liquid

CEPA DSL Propanoic acid, 3,3',3''-phosphinidylnitrens, hydrochloride; Mill-Q Water

International Regulations

EINECS Not available.

DSCG (EEC) R35/38- Irritating to eyes and skin.

International Lists Australia (NICNAS) Mill-Q Water

Japan (METI) Mill-Q Water

Korea (TCCL) Mill-Q Water

Philippines (RA6969) Mill-Q Water

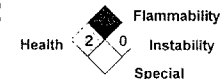
State Regulations No products were found.

Section 16. Other Information

Hazardous Material Information System (U.S.A.)

Fire hazard 3
Reactivity 0
Personal protection C

National Fire Protection Association (U.S.A.)



References Not available.

History of Document Changes Any information changes since last document version are marked with a triangle symbol. ▽

Full text of R phrases referred to in sections 2 and 3 - R34- Causes burns.
- Europe R36/38- Irritating to eyes and skin.

Full text of classifications referred to in sections 2 and 3 - C - Corrosive
- Europe Xi - Irritant

Intended Use Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

Continued on Next Page

**Bond Breaker™ TCEP Solution,
Neutral pH**

Page: 7/7

Validated by Company2 on 9/7/2005.

Verified by Company2.

Date of Previous Issue No Previous
Validation

Printed 9/7/2005.

Version

2

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.