

Product Name: Estradiol Parameter Assay Kit

Reviewed on: 23 August 2018


1. Identification of Substance:

- **Other means of identification: Catalog Number: KGE014**
Components: Microplate, Standard (contains ProClin 200), Conjugate (contains ProClin 300), Primary Antibody Solution (contains ProClin 200), Calibrator Diluent (contains ProClin 200), Pretreatment E (contains Trichloroacetic acid), Pretreatment F, Wash Buffer Concentrate, Color Reagent A, Color Reagent B (Tetramethylbenzidine in a Proprietary Buffer containing N,N-Dimethylformamide (DMF)), Stop Solution (contains Sulfuric acid), Plate Sealers.
- **GHS product identifier:** Estradiol Parameter Assay Kit
- **Application of the substance / the preparation:** For Research Use Only
- **Manufacturer/Supplier:**

Bio-Techne - R&D Systems Inc. 614 McKinley Place N.E. Minneapolis, MN 55413 USA Telephone: 1-800-343-7475 Internet: www.rndsystems.com Email: info@bio-techne.com	Canada 461 North Service Rd West Unit B37 Oakville, ON L6M 2V5 Phone: 1-855-668-8722 Email: Canada.inquiries@bio-techne.com	United Kingdom 19 Barton Lane Abingdon Science Park Abingdon, OX14 3NB Phone: 44 (0)1235 529449 Email: Info.emea@bio-techne.com
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- **For product related questions call:** 1-800-343-7475. In Europe call: +44(0)1235-529449.
- **Emergency information:** In case of a chemical emergency, spill, leak, fire, or accident call **CHEMTREC** at 1-800-424-9300 (US or Canada). Outside USA and Canada: +1 703-527-3887 (collect calls accepted).

2. Hazard Identification:

- **Classification: Regulation (EC) No. 1272/2008 [CLP/GHS]**

Stop Solution contains Sulfuric Acid:	Skin Irrit. Class 2 Eye Irrit. Class 2	
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Signal Word: WARNING
- **Hazard statements:** H 315: Causes skin irritation. H319: Causes serious eye irritation.
- **Precautionary statements:** P264: Wash hands thoroughly after handling. P280: Wear protective gloves, clothing and eye and face protection.
Response:
 IF ON SKIN (or hair): Immediately remove contaminated clothing and wash before re-use. Wash skin immediately with soap and water. Get medical attention if irritation persists after washing.
 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 attention.
 IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.
- **Classification according to Directive 67/548/EEC:** Irritating to eyes and skin.
- **Hazard Symbol / R-Phrase / S-Phrase:** Xi, Irritant / R36/38, Irritating to eyes and skin. S26, In case of contact with eyes, rinse immediately with plenty of water and see medical advice. S30: Never add water to this product. S45: In case of accident or if you feel unwell seek medical advice immediately (show label where possible)
- **Other hazards:** none

3. Information on Ingredients:

Description: Sulfuric Acid, Formula: H₂SO₄.

Contains	CAS No.	EC-No.	Index-No.	Content
Water	7732-18-5	231-791-2	NA	~90.2%
Sulfuric Acid	7664-93-9	231-639-5	016-020-00-8	~ 9.8%

4. First Aid Measures:

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- **IF IN EYES:** Rinse thoroughly with water for at least 15 minutes and immediately consult a physician.
- **IF ON SKIN (or hair):** Immediately take off contaminated clothing or shoes. Wash with plenty of soap and water. Consult a physician.
- **IF INHALED:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
- **IF SWALLOWED:** Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Immediately consult a physician.
- **Potential acute / delayed health effects:**
 - Eye contact:** Causes serious eye irritation / causes burns.
 - Skin contact:** Causes skin irritation / causes burns.
 - Inhalation:** Harmful if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
 - Ingestion:** Harmful if swallowed. Irritating to mouth, throat and stomach. / Causes burns.
- **Notes to physician:** Consult a physician. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures:

- **Suitable extinguishing agents:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- **Hazards from the substance or mixture:** In case of fire, toxic and corrosive gases may be formed.
- **Special precautions for fire-fighters:** Self contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental Release Measures:

- **Person-related safety precautions:** Use appropriate personal protective equipment to prevent contamination of skin, eyes and personal clothing. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.
- **Measures for environmental protection:** Keep away from drains.
- **Measures for containment and cleaning:** Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. Handling and Storage:

- **Precautions for safe handling:** Avoid inhalation of vapor or mist. Use normal measures for preventive fire protection.
- **Conditions for safe storage:** Store in a cool, dry place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. Exposure Controls and Personal Protection:

- **Control parameters:** Contains no substances with occupational exposure limit values.
- **Appropriate engineering controls:** Use with adequate ventilation including local extraction. Ensure that eyewash stations and safety showers are close to the workstation location.
- **Individual protection measures:** Wash hands thoroughly after handling chemical products and before eating, smoking or using the restroom.
Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.
 - Eye/face protection:** Wear approved safety goggles.
 - Skin/hand protection:** Handle with protective gloves, plastic or rubber. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

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Body protection: Wear suitable protective clothing as protection against splashing or contamination.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved.

Respiratory protection: In case of inadequate ventilation, use a suitable respirator. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. Physical and Chemical Properties:

- **Appearance:** Colorless Liquid.
- **Odor:** Pungent.
- **Odor threshold:** Not available.
- **pH:** ~1
- **Melting point/freezing point:** Not available.
- **Boiling point/Boiling range:** Not available.
- **Flash point:** Not available.
- **Evaporation rate:** Not available.
- **Flammability (solid, gas):** Not available.
- **Upper/lower flammability or explosive limits:** Not available.
- **Vapor density:** Not available.
- **Vapor pressure:** Not available.
- **Relative density:** Not available.
- **Solubility in/Miscibility with Water:** Soluble.
- **Partition coefficient: octanol/water:** Not available.
- **Auto igniting:** Not available.
- **Decomposition temperature:** Not available.
- **Viscosity:** Not available.

10. Stability and Reactivity:

- **Reactivity:** Contact with metals produces highly flammable hydrogen gas. Addition of water liberates excessive heat.
- **Chemical Stability:** Stable under recommended storage conditions.
- **Possibility of hazardous reactions:** Under normal conditions of storage and use, hazardous reactions will not occur.
- **Conditions to avoid:** Bases, Halides, Metals, Alkalis, Acetonitrile.
- **Incompatible materials:** Most metals, oxidizers, reducers, bases, metal carbonates, cyanides, sulphides, carbides, oxides, metal acetylides, hydrides, halogens, organic or combustible materials, perchlorates, acetonitrile, permanganates, alcohols, picrates.
- **Hazardous decomposition products:** Products formed under fire conditions: Oxides of Sulfur, Hydrogen gas.

11. Toxicological Information:

- **Acute toxicity:** Can cause severe burns upon contact while the vapors or mist are corrosive and can cause severe irritation or damage to the nose, throat and lungs. Ingestion of this product causes pain, nausea and vomiting and may be fatal if large doses are ingested.
- **Skin corrosion/irritation:** Can cause severe burns.
- **Serious eye damage/irritation:** Can cause severe burns.
- **Respiratory or skin sensitization:** Not available.
- **Germ cell mutagenicity:** Not available.
- **Carcinogenicity:** Not available.
- **Reproductive toxicity:** Not available.
- **Specific target organ toxicity (STOT) -single exposure:** Not available.
- **Specific target organ toxicity (STOT) -repeated exposure:** Not available.
- **Aspiration hazard:** Can cause severe burns.
- **Information on likely routes of exposure:** Routes of entry anticipated; oral, dermal, inhalation.
- **Symptoms related to the physical, chemical and toxicological characteristics:**
 - Inhalation:** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
 - Ingestion:** May be harmful if swallowed. Causes burns.

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Skin contact: May be harmful if absorbed through skin. Causes burns.

Eye contact: Causes eye burns.

▪ **Delayed and immediate effects and also chronic effects from short and long term exposure:**

Short term exposure: Potential immediate effects: Not available. **Potential delayed effects:** Not available.

Long term exposure: Potential immediate effects: Not available. **Potential delayed effects:** Not available.

▪ **Effects of chronic exposure:** Repeated skin contact with this product may lead to dermatitis while repeated inhalation may cause bronchitis, conjunctivitis, respiratory infections, emphysema and digestive disturbances. May cause erosion and discoloration of the teeth.

▪ **Numerical measures of toxicity:** Not available.

▪ **Other Information:** Not available.

12. Ecological Information:

▪ **Ecotoxicity:** This product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

▪ **Biodegradability:** Not available.

▪ **Bioaccumulative potential:** Not available.

▪ **Mobility in soil:** Not available.

▪ **Other adverse effects:** Not available.

13. Disposal Considerations:

▪ **Disposal methods:** Dispose of waste in accordance to applicable national, regional, or local regulations.

▪ **Contaminated packaging:** Dispose in the same manner as unused product.

▪ **Special precautions:** Dispose of small amounts of spilled material as described in section 6. Large spills must be dealt with separately by qualified disposal personnel. Avoid dispersal of spilt material to soil, waterways, drains and sewers.

14. Transportation Information:

ADR/RID ADN/ADNR IMDG IATA/DOT

ADR/DO/:	UN Number:	UN 2796
RID	Proper Shipping Name:	Sulfuric Acid
	Hazard class:	8
	Packing group:	II
IATA:	UN Number:	UN 2796
	Proper Shipping Name:	Sulfuric Acid
	Hazard class:	8
	Packing group:	II
IMDG:	UN Number:	UN 2796
	Proper Shipping Name:	Sulfuric Acid
	Hazard class:	8
	Packing group:	II
	EmS Number:	F-A, S-B
	Marine Pollutant:	No

15. Regulations:

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- **US Federal and State Regulations**
Toxic Substances Control Act: On TSCA Inventory.
SARA 313 Components: Not available.
SARA 311/312 Hazards: Acute Health Hazard.
CERCLA Reportable Quantity: 1,000 lbs
California Proposition 65: Not available.

16. Other Information:

- **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.

2. Hazard Identification:

- **Classification: Regulation (EC) No. 1272/2008 [CLP/GHS]**
Color Reagent B: contains Tetramethylbenzidine in a Proprietary Buffer
 Irritant, Dermal – Category 2 Reproductive
 Toxicity – Category 1B Acute Toxicity,
 Dermal – Category 4 Acute Toxicity,
 Inhalation – Category 4 Eye Irritation –
 Category 2A
- **Signal Word:** DANGER
- **Hazard statements:** H315 Causes skin irritation. H319 Causes serious eye irritation. H312 Harmful in contact with skin. H332 Harmful if inhaled. H335 May cause respiratory irritation. H360 May damage the unborn child.
- **Precautionary statements:** P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P261 Avoid breathing fumes. P264 Wash hands thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only in a well-ventilated area. P280 Wear protective gloves and protective clothing. P281 Use personal protective equipment as required.
 IF SWALLOWED: Call a poison control center or doctor if you feel unwell.
 IF ON SKIN: Wash with plenty of soap and water. Call a poison control center. Wash contaminated clothing before reuse.
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison control center or doctor/physician if you feel unwell.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do, continue rinsing.
 IF EXPOSED OR CONCERNED: Get medical advice/attention.
- **Potential Health Effects:**
Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Ingestion: May be harmful if swallowed.
- **Classification according to Directive 67/548/EEC:** T: Toxic. Repr.Cat.2: Reproductive toxins. Xi: Irritant
- **R-Phrase:** R61 May cause harm to unborn child. R20/21 Harmful by inhalation and in contact with skin. R36/37/38 Irritating to eyes, respiratory system and skin.
- **S-Phrase:** S26 in case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37 Wear suitable protective clothing and gloves. S45 In case of accident or if you feel unwell, seek medical advice immediately. S53 Avoid exposure – obtain special instructions before use.
- **Other hazards:** Rapidly absorbed through skin.



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3. Information on Ingredients:

Description: Tetramethylbenzidine in a Proprietary Buffer

Contains	CAS No.	EC-No.	Index-No.	Content
Proprietary Buffer with N,N-Dimethylformamide (DMF)	68-12-2	200-679-5	616-001-00-x	24% - 25%
Tetramethylbenzidine	54827-17-7	259-364-6	NA	<0.05%

4. First Aid Measures:

- **Consult a physician** Show this MSDS to the doctor in attendance.
- **If Inhaled:** Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
- **In case of skin contact:** Wash off with soap and plenty of water. Consult a physician.
- **In case of eye contact:** Rinse thoroughly with plenty of water for 15 minutes. Consult a physician.
- **If swallowed:** DO NOT INDUCE VOMITING. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
- **Most important symptoms and effects, both acute and delayed:** To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

5. Fire Fighting Measures:

- **Suitable extinguishing agents:** For small fires, use media such as "alcohol" foam, dry chemical or carbon dioxide. For large fires, apply water from as far as possible. Use large quantities of water applied as a mist or spray. Solid streams of water may be ineffective. Cool affected containers with flooding quantities of water.
- **Hazards from the substance or mixture:** Carbon oxides, Nitrogen oxides(NOx).
- **Special precautions for fire-fighters:** Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Use water spray to cool unopened containers.

6. Accidental Release Measures:

- **Person-related safety precautions:** Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- **Measures for environmental protection:** Prevent further leakage or spillage if safe to do so. Do not let enter drains.
- **Measures for containment and cleaning:** Contain spillage, and then collect with non-combustible absorbent material (eg. sand, diatomaceous earth, vermiculite). Place in a container for disposal according to local regulations.

7. Handling and Storage:

- **Precautions for safe handling:** Avoid exposure, obtain special instructions before use. Avoid contact with skin and eyes. Avoid inhalation of vapor and mist. Keep away from origins of ignition. No smoking. Take measures to prevent the buildup of electrostatic charge.
- **Conditions for safe storage:** Store in a cool place. Keep container tightly closed in a dry, well ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

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8. Exposure Controls and Personal Protection:

- **Component:** Tetramethylbenzidine Not an occupational hazard at these levels.
- **Component:** Proprietary buffer.
UK EH40 WEL – Workplace Exposure Limits: Value: STEL, 20 ppm, 61 mg/m³. **Value:** TWA, 10 ppm, 30 mg/m³. Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.
- **Appropriate engineering controls:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
- **Individual protection measures:** Wash hands thoroughly after handling chemical products and before eating, smoking or using the restroom. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.
Eye/face protection: Wear approved safety goggles.
Skin/hand protection: Handle with protective gloves, plastic or rubber. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Body protection: Wear suitable protective clothing according to the concentration and amount of the substance at the workplace.
Respiratory protection: In case of inadequate ventilation, use a suitable respirator. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. Physical and Chemical Properties:

- **Appearance:** Liquid
- **Odor:** Not available.
- **Odor:** Not available.
- **Odor threshold:** Not available.
- **pH:** Not available.
- **Melting point/freezing point:** Not available.
- **Partition coefficient: noctanol/water:** Not available.
- **Flash point:** Not available.
- **Water solubility:** Not available.
- **Evaporation rate:** Not available.
- **Upper/lower flammability or explosive limits:** Not available.
- **Vapor density:** Not available.
- **Vapor density :** Not available.
- **Vapor pressure:** Not available.
- **Relative density:** Not available.
- **Boiling point/Boiling range:** Not available.
- **Auto igniting:** Not available.
- **Decomposition temperature:** Not available.
- **Viscosity:** Not available.
- **Flammability (solid, gas):** Not available.

10. Stability and Reactivity:

- **Reactivity:** Not available.
- **Chemical Stability:** Not available.
- **Possibility of hazardous reactions:** Not available.
- **Conditions to avoid:** Heat, flames, sparks.
- **Incompatible materials:** Strong oxidizing agents.
- **Hazardous decomposition products:** Not available.

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11. Toxicological Information:

- **Acute toxicity:** Not available.
- **Skin corrosion/irritation:** Not available.
- **Serious eye damage/irritation:** Not available.
- **Respiratory or skin sensitization:** Not available.
- **Germ cell mutagenicity:** Genotoxicity in vitro – mouse – lymphocyte, Mutation in mammalian somatic cells.
- **Carcinogenicity:** Not classified to its carcinogenicity based on its IARC, ACGIH, NTP or EPA classification at levels less than 0.1%.
- **Reproductive toxicity:** May cause congenital malformation in the fetus. Presumed human reproductive toxicant.
- **Specific target organ toxicity (STOT) -single exposure:** Not available.
- **Specific target organ toxicity (STOT) -repeated exposure:** Not available.
- **Aspiration hazard:** Not available.
- **Information on likely routes of exposure:** Routes of entry anticipated; oral, dermal, inhalation.
- **Symptoms related to the physical, chemical and toxicological characteristics:**
 - Inhalation:** Toxic if inhaled. May cause respiratory tract irritation.
 - Ingestion:** May be harmful if swallowed.
 - Skin contact:** May be harmful if absorbed through skin. May cause skin irritation.
 - Eye contact:** Causes serious eye irritation.
- **Delayed and immediate effects and also chronic effects from short and long term exposure:** Not available.

12. Ecological Information:

- **Ecotoxicity:** Not available.
- **Biodegradability:** Not available.
- **Bioaccumulative potential:** Not available.
- **Mobility in soil:** Not available.
- **Other adverse effects:** Not available.

13. Disposal Considerations:

- **Disposal methods:** Dispose of waste in accordance to applicable national, regional, or local regulations. Contact a licensed professional waste disposal service to dispose of this material.
- **Contaminated packaging:** Dispose in the same manner as unused product.

14. Transportation Information:

- **UN Number:** Not available.
- **DOT regulations: Hazard class:** Not available.
- **Land transport ADR/RID (cross-border):** Not available.
- **Maritime transport IMDG:** Not available.
- **Marine pollutant:** Not available.
- **Air transport ICAO-TI and IATA-DGR:** Not available.
- **Transport/Additional information:** Not available.

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15. Regulations:


▪ **US Federal and State Regulations**

TSCA (Toxic Substances Control Act): N,N-Dimethylformamide - Not applicable.
Tetramethylbenzidine - Is Listed.

SARA 313: Not applicable.

SARA 311/312 Hazards: Not applicable.

CERCLA Reportable Quantity: Not applicable.

California Proposition 65:  **WARNING:** This product can expose you to chemicals including N,N-Dimethylformamide, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov.

16. Other Information:

- **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.

2. Hazard Identification:

▪ **Classification: Regulation (EC) No. 1272/2008 [CLP/GHS]**

Some components indicated above contain ProClin 300: Skin Sens. 1; H317: May cause an allergic skin reaction.

Signal Word: WARNING

▪ **Precautionary statements:**

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

P272: Contaminated work clothing should not be allowed out of the workplace.

P280: Wear protective gloves.

Response:

IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: get medical attention. Wash contaminated clothing before reuse.



- **Classification according to Directive 67/548/EEC:** The product is classified as a skin sensitizer according to Directive 1999/45/EC and its amendments.

- **Hazard Symbol / R-Phrase / S-Phrase:** R43: May cause sensitization by skin contact. S36/37: Wear Suitable protective clothing and gloves.

- **Other hazards:** Not available.

3. Information on Ingredients:

Description: ProClin 300

Contains	CAS No.	EC-No.	Index-No.	Content
Modified Alkyl Carboxylate	-	-	-	<0.01%
Mixture of 5-Chloro-2-Methyl-4- Isothiazolin-3-One (26172-55-4) and 2- Methyl-4-Isothiazolin-3-One (2682-20-4)	55965-84-9	-	613-167-00-5	<0.01%
Modified Glycol	-	-	-	≤1.6%

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4. First Aid Measures:

- IF IN EYES: Rinse thoroughly with water for at least 15 minutes and immediately consult a physician.
- IF ON SKIN (or hair): Immediately take off contaminated clothing or shoes. Wash with plenty of soap and water. Consult a physician.
- IF INHALED: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
- IF SWALLOWED: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Immediately consult a physician.

5. Fire Fighting Measures:

- **Suitable extinguishing agents:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- **Special precautions for fire-fighters:** Self contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental Release Measures:

- **Person-related safety precautions:** Use appropriate personal protective equipment to prevent contamination of skin, eyes and personal clothing. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
- **Measures for environmental protection:** Keep away from drains.
- **Measures for containment and cleaning:** Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. Handling and Storage:

- **Precautions for safe handling:** Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Use normal measures for preventive fire protection.
- **Conditions for safe storage:** Store in a cool, dry place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. Exposure Controls and Personal Protection:

- **Control parameters:** Contains no substances with occupational exposure limit values.
- **Individual protection measures:** Wash hands thoroughly after handling chemical products and before eating, smoking or using the restroom. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.
 - **Eye/face protection:** Wear approved safety goggles.
 - **Skin/hand protection:** Handle with protective gloves, plastic or rubber. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
 - **Body protection:** Wear suitable protective clothing as protection against splashing or contamination.
 - **Other skin protection:** Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved.
 - **Respiratory protection:** In case of inadequate ventilation, use a suitable respirator. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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9. Physical and Chemical Properties:

- **Appearance:** Clear Liquid.
- **Odor:** Not available.
- **Odor threshold:** Not available.
- **pH:** Not available.
- **Melting point/freezing point:** -40° C.
- **Boiling point/Boiling range:** 189° C.
- **Flash point:** 118° C – closed cup.
- **Evaporation rate:** Not available.
- **Flammability (solid, gas):** Not available.
- **Upper/lower flammability or explosive limits:** Not available.
- **Vapor density :** Not available.
- **Vapor pressure:** Not available.
- **Relative density:** 1.03 g/cm.³
- **Solubility in/Miscibility with Water:** Soluble.
- **Partition coefficient: noctanol/water:** Not available.
- **Auto igniting:** Not available.
- **Decomposition temperature:** Not available.
- **Viscosity:** Not available.

10. Stability and Reactivity:

- **Chemical Stability:** Stable under recommended storage conditions.
- **Conditions to avoid:** Strong oxidizing agents, reducing agents, Amines, Mercaptans.
- **Hazardous decomposition products:** Hazardous decomposition products formed under fire conditions – Carbon oxides, nitrogen oxides (NOx), Sulfur oxides, Hydrogen chloride gas.

11. Toxicological Information:

- **Acute toxicity:** LD50 Oral – rat – 862 mg/kg.
LD50 Dermal – rabbit- 2800 mg/kg.
- **Skin corrosion/irritation:** Can cause severe burns. Skin – rabbit – Corrosive.
- **Serious eye damage/irritation:** Rabbit – Corrosive to eyes.
- **Respiratory or skin sensitization:** May cause allergic skin reaction.
- **Germ cell mutagenicity:** Not available.
- **Carcinogenicity:** Not available.
- **Reproductive toxicity:** Not available.
- **Specific target organ toxicity (STOT) -single exposure:** Not available.
- **Specific target organ toxicity (STOT) -repeated exposure:** Not available.
- **Aspiration hazard:** Can cause severe burns.
- **Information on likely routes of exposure:** Routes of entry anticipated; oral, dermal, inhalation.
- **Symptoms related to the physical, chemical and toxicological characteristics:**
 - Inhalation:** Harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
 - Ingestion:** Harmful if swallowed. Causes burns.
 - Skin contact:** Harmful if absorbed through skin. Causes burns.
 - Eye contact:** Causes eye burns.
- **Delayed and immediate effects and also chronic effects from short and long term exposure:**
 - Short term exposure: Potential immediate effects:** Not available. **Potential delayed effects:** Not available.
 - Long term exposure: Potential immediate effects:** Not available. **Potential delayed effects:** Allergic contact dermatitis.
- **Effects of chronic exposure:** ProClin 300 at levels greater than or equal to 0.1% is not identified as probable, possible or a confirmed human carcinogen by IARC.
- **Numerical measures of toxicity:** Not available.
- **Other Information:** Not available.

Product Name: Estradiol Parameter Assay Kit

Reviewed on: 23 August 2018

12. Ecological Information:

- **Ecotoxicity:** Not available.
- **Biodegradability:** Not available.
- **Bioaccumulative potential:** Not available.
- **Mobility in soil:** Not available.
- **Other adverse effects:** Toxic to aquatic organisms.

13. Disposal Considerations:

- **Disposal methods:** Dispose of waste in accordance to applicable national, regional, or local regulations.
- **Contaminated packaging:** Dispose in the same manner as unused product.
- **Special precautions:** Dispose of small amounts of spilled material as described in section 6. Large spills must be dealt with separately by qualified disposal personnel. Avoid dispersal of spilt material to soil, waterways, drains and sewers.

14. Transportation Information:

- **UN Number:** Not available.
- **DOT regulations: Hazard class:** Not available.
- **Land transport ADR/RID (cross-border):** Not available.
- **Maritime transport IMDG:** Not available.
- **Marine pollutant:** Not available.
- **Air transport ICAO-TI and IATA-DGR:** Not available.
- **Transport/Additional information:** Not available.

15. Regulations:

- **US Federal and State Regulations**
- **Toxic Substances Control Act:** On TSCA Inventory.
- **SARA 313 Components:** Not available.
- **SARA 311/312 Hazards:** Acute Health Hazard.
- **CERCLA Reportable Quantity:** 1,000 lbs.
- **California Proposition 65:** Not available.

16. Other Information:

- **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.

2. Hazard Identification:

- **Classification: Regulation (EC) No. 1272/2008 [CLP/GHS]**
Some components indicated above contain ProClin 200: Skin Sens. 1; H317: May cause an allergic skin reaction.
- **Signal Word:** WARNING



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▪ **Precautionary statements:**

- P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
- P272: Contaminated work clothing should not be allowed out of the workplace.
- P280: Wear protective gloves.

Response:

IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: get medical attention. Wash contaminated clothing before reuse.

- **Classification according to Directive 67/548/EEC:** The product is classified as a skin sensitizer according to Directive 1999/45/EC and its amendments.
- **Hazard Symbol / R-Phrase / S-Phrase:** R43: May cause sensitization by skin contact. S36/37: Wear Suitable protective clothing and gloves
- **Other hazards:** Not available.

3. Information on Ingredients:

Description: ProClin 200

Contains	CAS No.	EC-No.	Index-No.	Content
Magnesium nitrate	10377-60-3	233-826-7	-	<0.05%
Mixture of 5-Chloro-2-Methyl-4-Isothiazolin-3-One (26172-55-4) and 2-Methyl-4-Isothiazolin-3-One (2682-20-4)	55965-84-9	-	613-167-00-5	<0.01%
Magnesium chloride	7786-30-3	232-094-6	-	<0.001%
Copper dinitrate	3251-23-8	221-838-5	-	<0.001%

4. First Aid Measures:

- IF IN EYES: Rinse thoroughly with water for at least 15 minutes and immediately consult a physician.
- IF ON SKIN (or hair): Immediately take off contaminated clothing or shoes. Wash with plenty of soap and water. Consult a physician.
- IF INHALED: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
- IF SWALLOWED: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Immediately consult a physician.

5. Fire Fighting Measures:

- **Suitable extinguishing agents:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- **Special precautions for fire-fighters:** Self contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental Release Measures:

- **Person-related safety precautions:** Use appropriate personal protective equipment to prevent contamination of skin, eyes and personal clothing. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
- **Measures for environmental protection:** Keep away from drains.
- **Measures for containment and cleaning:** Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

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7. Handling and Storage:

- **Precautions for safe handling:** Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use normal measures for preventive fire protection.
- **Conditions for safe storage:** Store in a cool, dry place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. Exposure Controls and Personal Protection:

- **Control parameters:** Contains no substances with occupational exposure limit values.
- **Individual protection measures:** Wash hands thoroughly after handling chemical products and before eating, smoking or using the restroom. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.
 - Eye/face protection:** Wear approved safety goggles.
 - Skin/hand protection:** Handle with protective gloves, plastic or rubber. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
 - Body protection:** Wear suitable protective clothing as protection against splashing or contamination.
 - Other skin protection:** Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved.
 - Respiratory protection:** In case of inadequate ventilation, use a suitable respirator. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. Physical and Chemical Properties:

- **Appearance:** Clear Liquid
- **Odor:** Not available.
- **Odor threshold:** Not available.
- **pH:** Not available.
- **Melting point/freezing point:** -40° C.
- **Boiling point/Boiling range:** 189° C.
- **Flash point:** 118° C – closed cup.
- **Evaporation rate:** Not available.
- **Flammability (solid, gas):** Not available.
- **Upper/lower flammability or explosive limits:** Not available.
- **Vapor density :** Not available.
- **Vapor pressure:** Not available.
- **Relative density:** 1.03 g/cm³
- **Solubility in/Miscibility with Water:** Soluble.
- **Partition coefficient: noctanol/water:** Not available.
- **Auto igniting:** Not available.
- **Decomposition temperature:** Not available.
- **Viscosity:** Not available.

10. Stability and Reactivity:

- **Chemical Stability:** Stable under recommended storage conditions.
- **Conditions to avoid:** Strong oxidizing agents, reducing agents, Amines, Mercaptans.
- **Hazardous decomposition products:** Hazardous decomposition products formed under fire conditions – Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, Hydrogen chloride gas.

11. Toxicological Information:

- **Acute toxicity:** LD50 Oral – rat – 862 mg/kg.

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LD50 Dermal – rabbit- 2800 mg/kg.

- **Skin corrosion/irritation:** Can cause severe burns. Skin – rabbit – Corrosive.
- **Serious eye damage/irritation:** Rabbit – Corrosive to eyes.
- **Respiratory or skin sensitization:** May cause allergic skin reaction.
- **Germ cell mutagenicity:** Not available.
- **Carcinogenicity:** Not available.
- **Reproductive toxicity:** Not available.
- **Specific target organ toxicity (STOT) -single exposure:** Not available.
- **Specific target organ toxicity (STOT) -repeated exposure:** Not available.
- **Aspiration hazard:** Can cause severe burns.
- **Information on likely routes of exposure:** Routes of entry anticipated; oral, dermal, inhalation.
- **Symptoms related to the physical, chemical and toxicological characteristics:**
 - Inhalation:** Harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
 - Ingestion:** Harmful if swallowed. Causes burns.
 - Skin contact:** Harmful if absorbed through skin. Causes burns.
 - Eye contact:** Causes eye burns.
- **Delayed and immediate effects and also chronic effects from short and long term exposure:**
 - Short term exposure: Potential immediate effects:** Not available. **Potential delayed effects:** Not available.
 - Long term exposure: Potential immediate effects:** Not available. **Potential delayed effects:** Allergic contact dermatitis.
- **Effects of chronic exposure:** ProClin 200 at levels greater than or equal to 0.1% is not identified as probable, possible or a confirmed human carcinogen by IARC.
- **Numerical measures of toxicity:** Not available.
- **Other Information:** Not available.

12. Ecological Information:

- **Ecotoxicity:** Not available.
- **Biodegradability:** Not available.
- **Bioaccumulative potential:** Not available.
- **Mobility in soil:** Not available.
- **Other adverse effects:** Toxic to aquatic organisms.

13. Disposal Considerations:

- **Disposal methods:** Dispose of waste in accordance to applicable national, regional, or local regulations.
- **Contaminated packaging:** Dispose in the same manner as unused product.
- **Special precautions:** Dispose of small amounts of spilled material as described in section 6. Large spills must be dealt with separately by qualified disposal personnel. Avoid dispersal of spilled material to soil, waterways, drains and sewers.

14. Transportation Information:

- **UN Number:** Not available.
- **DOT regulations:** · **Hazard class:** Not available.
- **Land transport ADR/RID (cross-border):** Not available.
- **Maritime transport IMDG:** Not available.
- **Marine pollutant:** Not available.
- **Air transport ICAO-TI and IATA-DGR:** Not available.

Transport/Additional information: Not dangerous according to the above specifications.

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15. Regulations:

- **US Federal and State Regulations**
TSCA (Toxic Substances Control Act): On TSCA Inventory.
SARA 313 Components: Not available.
SARA 311/312 Hazards: Acute Health Hazard.
CERCLA Reportable Quantity: Not available.
California Proposition 65: Not available.

16. Other Information:

- **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.

2. Hazards Identification:

- **Classification: Regulation (EC) No. 1272/2008 [CLP/GHS]: Trichloroacetic Acid Solution**

Skin Corrosion, 1A

Aquatic Acute 1

Aquatic Chronic 1

STOT SE 3



- **Signal Word:** DANGER

- **Hazard Statement(s):** H314: Causes severe skin burns and eye damage. H410: Harmful to aquatic life with long lasting effects. H335: May cause respiratory irritation.

- **Precautionary Statement(s):** P260: Do not breathe dust or mists. P264: Wash hands thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P391: Collect spillage.

- **Response:**

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water.

IF INHALED: Remove victim to fresh air and keep comfortable for breathing. Call a POISON CONTROL center or physician if you feel unwell.

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

IF EXPOSED: Immediately Call a POISON CONTROL center or physician. See specific treatment in this SDS.

- **Classification according to Directive 67/548/EEC:** C: Corrosive. N: Dangerous for the environment.
- **R-phrases:** R35: Causes severe burns. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- **S-phrases:** S1/2: Keep locked up and out of reach of children. S26: In case of contact with eyes, rinse immediately with plenty of water and see medical advice. S36: Wear suitable protective clothing, gloves and eye/face protection. S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible). S60: This material and its container must be disposed of as hazardous waste. S61 Avoid release to the environment. Refer to special instructions/safety data sheet.
- **Other Hazards:** Not available.

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Product Name: Estradiol Parameter Assay Kit

Reviewed on: 23 August 2018

3. Information on Ingredients:

Contains	EINECS	CAS No.	Index No.	Content %
Trichloroacetic Acid (TCA)	200-927-2	76-03-9	Not available.	10%

4. First Aid Measures:

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for at least 15 minutes under running water. Then consult a doctor.
- **After swallowing:** Rinse mouth with water. Do NOT induce vomiting. Immediately seek medical attention and appropriate follow-up.

5. Fire Fighting Measures:

- **Suitable extinguishing agents:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- **Specific hazards arising from the chemical:** Not available.
- **Protective equipment:** Wear appropriate protective clothing and a self-contained breathing apparatus if necessary.

6. Accidental Release Measures:

- **Person-related safety precautions:** Avoid breathing vapors, mist or gas. Ensure adequate ventilation.
- **Measures for environmental protection:** Prevent further spillage or leakage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
- **Measures for containment and cleaning:** Absorb liquid components with inert liquid-binding material. Pick up mechanically. Dispose contaminated material as waste according to item 13.

7. Handling and Storage:

- **Precautions for safe handling:** Store in a well ventilated place. Keep container tightly closed.
- **Information about protection against explosions and fires:** Normal measures for preventive fire protection.
- **Conditions for safe storage:** Store locked up. Keep container tightly closed in a dry and well ventilated place.

8. Exposure Controls and Personal Protection:

- **Components: Trichloroacetic Acid**
NIOSH REL: Value: TWA 1.0 ppm (7 mg/m³)
- **Appropriate engineering controls:** Follow usual standard laboratory practices. The following personal protection is recommended:
 - **Respiratory Protection:** Use respirators and components approved under appropriate government standards.
 - **Hand Protection:** Handle with gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
 - **Eye Protection:** Use equipment for eye protection tested and approved under appropriate government standards.
 - **Skin and Body Protection:** Use impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
 - **Hygiene Measures:** Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

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9. Physical and Chemical Properties:

- **Appearance:** Clear liquid.
- **Odor:** Pungent, sharp odor.
- **Odor threshold:** Not available.
- **pH:** Not available.
- **Melting point/freezing point:** Not available.
- **Boiling point/Boiling range:** Not available.
- **Flash point:** Not available.
- **Evaporation rate:** Not available.
- **Flammability:** Not available.
- **Upper/lower flammability or explosive limits:** Not available.
- **Vapor pressure/density:** Not available.
- **Relative Density:** Not available.
- **Solubility in/Miscibility with Water:** Not available.
- **Partition coefficient: noctanol/water:** Not available
- **Auto igniting:** Product is not self igniting.
- **Decomposition temperature:** Not available.
- **Viscosity:** Not available.

10. Stability and Reactivity:

- **Reactivity:** Reacts with moisture, iron, zinc, aluminum, strong oxidizers.
- **Chemical Stability:** Stable under normal ambient and storage and handling temperatures.
- **Thermal:** Decomposes on heating to form phosgene and hydrogen chloride.
- **Incompatible materials to be avoided:** Metals and metallic compounds.
- **Hazardous decomposition products:** Hazardous decompositions formed under fire conditions, Hydrogen chloride gas, carbon monoxide and carbon dioxide.

11. Toxicological Information:

- **Acute toxicity:** Oral LD50: 3310 – 6900 mg/kg (rat); 4970 mg/kg (mouse).
Inhalation LD50: >4800 ppm (rat).
Skin LD50: >2000 mg/kg (rat).
- **Skin corrosion / irritation:** May cause skin irritation, burns, or dermatitis.
- **Serious eye damage / irritation:** May cause eye irritation, burns.
- **Respiratory or skin sensitization:** Cough, dyspnea (breathing difficulty, delayed pulmonary edema).
- **Germ cell mutagenicity:** Not available.
- **Carcinogenicity:** Not available.
- **Reproductive toxicity:** Not available.
- **STOT-single exposure:** Not available.
- **STOT-repeated exposure:** Not available.
- **Aspiration hazard:** May be harmful if inhaled. May cause respiratory tract irritation.
- **Additional Information:** RTECS: AJ7875000

12. Ecological Information:

- **Ecotoxicity:** Harmful to aquatic life. LC50, 96 Hrs, Fish *Pimephales promelas* - 2000 mg/L; EC50, 48 Hrs, *Daphnia magna* - 2000 mg/L.
- **Persistence and degradability:** Non-biodegradable.
- **Bioaccumulative potential:** Low bioaccumulation potential for fish; high bioaccumulation potential for plants.
- **Mobility in soil:** Not available.
- **Other adverse effects:** Not available.

13. Disposal Considerations:

- **Disposal methods:** Dispose of waste in accordance to applicable national, regional, or local regulations.
- **Contaminated packaging:** Dispose in the same manner as unused product.

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- **Special precautions:** Dispose of small amounts of spilled material as described in section 6. Large spills must be dealt with separately by qualified disposal personnel. Avoid dispersal of spilt material to soil, waterways, drains and sewers.

14. Transport Information:

- **ADR/RID ADN/ADNR IMDG IATA/DOT**

ADR/DOT/: UN Number: UN2564
Proper Shipping Name: Trichloroacetic Acid Solution
Hazard class: 8
Packing group: II

IATA: UN Number: UN2564
Proper Shipping Name: Trichloroacetic Acid Solution
Hazard class: 8
Packing group: II

IMDG: UN Number: UN2564
Proper Shipping Name: Trichloroacetic Acid Solution
Hazard class: 8
Packing group: II
Marine Pollutant: Yes

15. Regulations:


- **US Federal and State Regulations**

TSCA (Toxic Substances Control Act): Trichloroacetic acid is listed.

SARA 313: Not available.

SARA 311/312 Hazards: Not available.

CERCLA Reportable Quantity: Not available.

California Proposition 65:  **WARNING:** This product can expose you to chemicals including trichloroacetic Acid, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov.

16. Other Information:

- **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.