1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier
Product name: TB-95 ETCHING FLUID FOR STAINLESS STEEL
Synonyms: ETCHING FLUID FOR STAINLESS STEEL

1.2 Uses and uses advised against
Uses: ETCHANT
Etching Stainless Steel with the TIG Brush.

1.3 Details of the supplier of the product
Supplier name: ENSITECH INC
Address: 340 Marshall Avenue, Bldg#104, Aurora, Illinois, 60506, UNITED STATES
Telephone: +1 630 405 6440
Fax: +1 630 423 5979
Email: info@tigbrush.com
Website: www.tigbrush.com

1.4 Emergency telephone numbers
Emergency: +1 352-323-3500

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
CLASSIFIED AS HAZARDOUS UNDER OSHA HAZARD COMMUNICATION STANDARD 29 CFR 1910.1200

Physical Hazards
Not classified as a Physical Hazard

Health Hazards
Skin Corrosion/Irritation: Category 2
Serious Eye Damage / Eye Irritation: Category 2A

Environmental Hazards
Not classified as an Environmental Hazard

2.2 GHS Label elements
Signal word: WARNING

Pictograms:

Hazard statements
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Prevention statements
P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
Response statements
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 Specific treatment is advised - see first aid instructions.
P332 + P337 + P313 If skin or eye irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before re-use.

Storage statements
None allocated.

Disposal statements
None allocated.

2.3 Other hazards
No information provided.

NFPA

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EC Number</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROCHLORIC ACID</td>
<td>7647-01-0</td>
<td>231-595-7</td>
<td>1 to 2%</td>
</tr>
<tr>
<td>WATER</td>
<td>7732-18-5</td>
<td>231-791-2</td>
<td>&gt;60%</td>
</tr>
<tr>
<td>NON HAZARDOUS INGREDIENTS</td>
<td>Not Available</td>
<td>Not Available</td>
<td>&lt;10%</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of first aid measures
Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.
Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.
Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.
Ingestion For advice, contact the Poison Control Centre at 1-800-222-1222 or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed
May cause irritation to the eyes, skin and respiratory system.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve toxic gases if strongly heated.
5.3 Advice for firefighters
Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures.
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Ventilate area where possible. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then cover / absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Reference</th>
<th>TWA</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ppm</td>
<td>mg/m³</td>
</tr>
<tr>
<td>Hydrogen chloride (Hydrochloric acid)</td>
<td>ACGIH TLV [USA]</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Biological limits
No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls
Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.
PPE

Eye / Face: Wear splash-proof goggles.

Hands: Wear PVC or rubber gloves.

Body: When using large quantities or where heavy contamination is likely, wear coveralls. In a laboratory situation, wear a laboratory coat.

Respiratory: Not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>TEAL COLOURED LIQUID</td>
</tr>
<tr>
<td>Odour</td>
<td>PEPPERMINT ODOUR</td>
</tr>
<tr>
<td>Flammability</td>
<td>NON FLAMMABLE</td>
</tr>
<tr>
<td>Flash point</td>
<td>NOT RELEVANT</td>
</tr>
<tr>
<td>Boiling point</td>
<td>100°C (Approximately)</td>
</tr>
<tr>
<td>Melting point</td>
<td>0°C (Approximately)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>pH</td>
<td>1 (Approximately)</td>
</tr>
<tr>
<td>Vapour density</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.05</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>SOLUBLE</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>NOT RELEVANT</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>NOT RELEVANT</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Viscosity</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>NOT AVAILABLE</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

10.1 Reactivity
Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization will not occur.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials
Incompatible with oxidising agents (e.g. hypochlorites), alkalis (e.g. sodium hydroxide) and metals.

10.6 Hazardous decomposition products
May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
TB-95 ETCHING FLUID FOR STAINLESS STEEL

PRODUCT NAME

Acute toxicity Based on available data, the classification criteria are not met.

Information available for the ingredients:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROCHLORIC ACID</td>
<td>2210 mg/kg (rat)</td>
<td>--</td>
<td>1108 ppm/1hr (human - respiratory irritation)</td>
</tr>
</tbody>
</table>

Skin Irritating to the skin. Contact may result in irritation, pain and redness. May result in burns with prolonged contact.

Eye Irritating to the eyes. Contact may result in irritation, lacrimation, pain and redness. May result in burns with prolonged contact.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Insufficient data available to classify as a mutagen.

Carcinogenicity Insufficient data available to classify as a carcinogen.

Reproductive Insufficient data available to classify as a reproductive toxin.

STOT - single exposure Over exposure may result in irritation of the nose and throat, coughing, nausea and headache. High level exposure may result in nasal inflammation, delayed breathing difficulties and pulmonary oedema.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure. Adverse effects are generally associated with single exposure.

Aspiration Not classified as causing aspiration. Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Hydrochloric acid is hazardous to aquatic life at high concentrations.

12.2 Persistence and degradability
The product is not expected to persist in the environment.

12.3 Bioaccumulative potential
Not expected to bioaccumulate.

12.4 Mobility in soil
This substance is water soluble and is expected to remain primarily in water.

12.5 Results of PBT and vPvB assessment
Not classified as PBT or vPvB.

12.6 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal For small amounts (as determined by risk assessment or similar): Wearing the protective equipment detailed above, neutralise to pH 6-8 by SLOW addition to a saturated sodium bicarbonate solution or similar basic solution. Dilute with excess water and flush to drain. Waste disposal should only be undertaken in a well ventilated area. For larger amounts: Dispose in accordance with relevant local legislation.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF DOT, IMDG OR IATA
**PRODUCT NAME**
TB-95 ETCHING FLUID FOR STAINLESS STEEL

<table>
<thead>
<tr>
<th><strong>14.1 UN Number</strong></th>
<th>LAND TRANSPORT (DOT)</th>
<th>SEA TRANSPORT (IMDG / IMO)</th>
<th>AIR TRANSPORT (IATA / ICAO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None allocated.</td>
<td>None allocated.</td>
<td>None allocated.</td>
<td>None allocated.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>14.2 Proper Shipping Name</strong></th>
<th>LAND TRANSPORT (DOT)</th>
<th>SEA TRANSPORT (IMDG / IMO)</th>
<th>AIR TRANSPORT (IATA / ICAO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None allocated.</td>
<td>None allocated.</td>
<td>None allocated.</td>
<td>None allocated.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>14.3 Transport hazard class</strong></th>
<th>LAND TRANSPORT (DOT)</th>
<th>SEA TRANSPORT (IMDG / IMO)</th>
<th>AIR TRANSPORT (IATA / ICAO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None allocated.</td>
<td>None allocated.</td>
<td>None allocated.</td>
<td>None allocated.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>14.4 Packing Group</strong></th>
<th>LAND TRANSPORT (DOT)</th>
<th>SEA TRANSPORT (IMDG / IMO)</th>
<th>AIR TRANSPORT (IATA / ICAO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None allocated.</td>
<td>None allocated.</td>
<td>None allocated.</td>
<td>None allocated.</td>
</tr>
</tbody>
</table>

**14.5 Environmental hazards**
No information provided.

**14.6 Special precautions for user**

**15. REGULATORY INFORMATION**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

**US EPCRA and CAA Regulatory Information**
The following components are subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112(r) of the Clean Air Act (CAA):

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>Sara 302 (TPQ)</th>
<th>Sara 304 (RQ)</th>
<th>CERCLA (RQ)</th>
<th>Sara 313</th>
<th>RCRA Code</th>
<th>CAA (TQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROCHLORIC ACID</td>
<td>7647-01-0</td>
<td></td>
<td></td>
<td>5000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Refer to Section 16 - Summary of Codes

**Carcinogenicity**
The following carcinogenic status applies:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>NTP</th>
<th>IARC</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROCHLORIC ACID</td>
<td>7647-01-0</td>
<td>NTP</td>
<td>Group 3</td>
<td></td>
</tr>
</tbody>
</table>

**Inventory listings**
UNITED STATES: TSCA (US Toxic Substances Control Act)
All components are listed on the TSCA inventory, or are exempt.

**16. OTHER INFORMATION**

**16.1 Additional information**

**PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:**
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

**HEALTH EFFECTS FROM EXPOSURE:**
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.
16.2 Abbreviations

ACGIH  American Conference of Governmental Industrial Hygienists
CAA  Clean Air Act
CAS #  Chemical Abstract Service number - used to uniquely identify chemical compounds
CERCLA  Comprehensive Environmental Response, Compensation, and Liability Act
CNS  Central Nervous System
EC No.  EC No - European Community Number
EMS  Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
EPCRA  Emergency Planning and Community Right-to-Know Act
GHS  Globally Harmonized System
IARC  International Agency for Research on Cancer
LC50  Lethal Concentration, 50% / Median Lethal Concentration
LD50  Lethal Dose, 50% / Median Lethal Dose
mg/m³  Milligrams per Cubic Metre
NTP  U.S. National Toxicology Program
OSHA  Occupational Safety and Health Administration
PEL  Permissible Exposure Limit
pH  relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm  Parts Per Million
RCRA  Resource Conservation and Recovery Act
RQ  Reportable Quantity measured in pounds (304, CERCLA)
SARA  Superfund Amendments and Reauthorization Act
STEL  Short-Term Exposure Limit
STOT-RE  Specific target organ toxicity (repeated exposure)
STOT-SE  Specific target organ toxicity (single exposure)
TLV  Threshold Limit Value
TPQ  Threshold Planning Quantity measured in pounds (302)
TQ  Threshold Quantity measured in pounds (CAA)
TWA  Time Weighted Average

16.3 Summary Of Codes

RQ  Reportable Quantity measured in pounds (304, CERCLA)
TQ  Threshold Quantity measured in pounds (CAA)
TPQ  Threshold Planning Quantity measured in pounds (302)
^  Reporting threshold has changed since November 1998.
+  Member of PAC category.
#  Member of diisocyanate category.
X  Indicates that this is a second name for a chemical already included on this consolidated list. May also indicate that the same chemical with the same CAS number appears on another list with a different chemical name.
*  RCRA carbamate waste: statutory one-pound RQ applies until RQs are adjusted.
**  This chemical was identified from a Premanufacture Review Notice (PMN) submitted to EPA. The submitter has claimed certain information on the submission to be confidential, including specific chemical identity.
***  Indicates that no RQ is assigned to this generic or broad class, although the class is a CERCLA hazardous substance. See 50 Federal Register 13456 (April 4, 1985). Values in Section 313 column represent Category Codes for reporting under Section 313.
c  Although not listed by name and CAS number, this chemical is reportable under one or more of the EPCRA section 313 chemical categories.
s  Indicates that this chemical is currently under a administrative stay of the EPCRA section 313 reporting requirements, therefore, no Toxics Release Inventory reports are required until the stay is removed.
!  Member of the dioxin and dioxin-like compounds category.

16.4 Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ("SDS").

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

[ End of SDS ]