

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Shandon TBD-1

PART NUMBER: 230010

GENERAL USE: Histological decalcifying agent

PRODUCT DESCRIPTION: Clear to slight yellow acidic liquid, pungent odor



MANUFACTURER'S NAME (Distributor in the Americas) Thermo Electron Corporation	DATE PREPARED: June 26, 2003 SUPERSEDES: December 1, 2001	Page 1 of 4
ADDRESS (NUMBER, STREET, P.O. BOX) 171 Industry Drive (CITY, STATE AND ZIP CODE) COUNTRY Pittsburgh, PA 15275 USA	TELEPHONE NUMBER FOR INFORMATION (412) 788-1133 EMERGENCY TELEPHONE NUMBER CHEM • TEL (800) 255-3924 Outside USA (813) 248-0585	
DISTRIBUTOR'S NAME (Outside the Americas) Thermo Electron Corporation		
ADDRESS (NUMBER, STREET, P.O. BOX) 93/96 Chadwick Road, Astmoor (CITY, STATE AND ZIP CODE) COUNTRY Runcorn, Cheshire WA7 1PR United Kingdom	TELEPHONE NUMBER FOR INFORMATION +44 (0) 1928 562547 EMERGENCY TELEPHONE NUMBER CHEM • TEL (813) 248-0585	

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	% (by weight)	CAS #	EINECS #	Hazard Symbol	RISK PHRASES Full Text Section 16
Hydrochloric acid (a,b,c)	30 - 60	7647-01-0	231-595-7	C	R-34, 37
Polyvinylpyrrolidone	5 - 10	9003-39-8	Not found	NC	NC

(a) See Section 15

(b) A "C" in the OSHA PEL or ACGIH TWA column indicates ceiling limits, the concentration that should not be exceeded during any part of the working exposure.

(c) OSHA proposed a regulation (29 CFR 1910.119) to monitor and control safety at certain types of industrial facilities. Compliance is triggered by specified quantities of specific chemicals. Minimum threshold quantity for this Highly Hazardous Chemical is 5000 lbs.

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Corrosive. Causes chemical burns to skin, eyes, respiratory system and digestive system. Harmful in contact with skin and if swallowed. Readily absorbed through the skin. Hazard symbol for this product: C Risk Phrases - R34, 37

POTENTIAL HEALTH EFFECTS

INHALATION: Corrosive and irritating to upper respiratory tract.

SKIN: Corrosive and irritating; chemical burns may result from contact.

EYES: Corrosive; Causes immediately severe irritation of the eye and eyelids. If not quickly removed by thorough irrigation with water, there may be prolonged or permanent visual impairment or total loss of sight

INGESTION: Corrosive to the mucous lining of the mouth, throat, esophagus and stomach

CARCINOGENICITY NTP? No IARC MONOGRAPHS? No OSHA REGULATED? No

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SECTION 4 - FIRST AID MEASURES

INHALATION: Remove affected person to fresh air; if breathing has not returned to normal within a few minutes after exposure, get medical attention.

SKIN: Remove contaminated clothing; wash affected area with soap and water; launder contaminated clothing before reuse; if irritation persists, seek medical attention.

EYES: Remove contact lenses. Immediately flush eyes for 15 minutes in clear running water while holding eyelids open; seek medical attention immediately.

INGESTION: Drink two glasses of water followed by milk, milk of magnesia or other non-alcoholic liquids; DO NOT induce vomiting; seek medical attention immediately.

SECTION 5 - FIRE FIGHTING MEASURES

GENERAL HAZARDS: Product is corrosive. Products of combustion include compounds of carbon, hydrogen and oxygen, including carbon monoxide and chlorine.

EXTINGUISHING MEDIA
Carbon dioxide, water, water fog, dry chemical, chemical foam

FIRE FIGHTING PROCEDURES
Keep containers cool with water spray to prevent container rupture due to steam buildup; CAUTION - material is corrosive.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Contact with B:C extinguisher powder may produce large amounts of carbon dioxide.

HAZARDOUS COMBUSTION PRODUCTS
Smoke, fumes, oxides of carbon, chlorine

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: CAUTION - CORROSIVE. Wash small spills to sanitary sewer. Large spills - confine spill, soak up with approved absorbent, shovel product into approved container for disposal. For spills in excess of allowable limits (RQ) notify the National Response Center (800) 424 - 8802; refer to CERCLA 40 CFR 302 for detailed instructions concerning reporting requirements.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep container closed when not in use; protect containers from abuse; protect from extreme temperatures. Separate from oxidizing materials, metallic powders and other easily oxidized organic materials and reducing agents. CAUTION - material is corrosive.L29

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

HAZARDOUS COMPONENTS	NIOSH				ACGIH			
	TWA ppm	TWA mg/m3	STEL ppm	STEL mg/m3	TWA ppm	TWA mg/m3	STEL ppm	STEL mg/m3
Hydrochloric acid (a,b,c)	5 C	7 C	--	--	5 C	7.5 C	--	--
Polyvinylpyrrolidone	Not established				Not established			

PERSONAL PROTECTION:

RESPIRATORY PROTECTION (SPECIFY TYPE): None required while threshold limits (Section 2) are kept below maximum allowable concentrations; if TWA exceeds limits, NIOSH approved respirator must be worn. Refer to 29 CFR 1910.134 or European Standard EN 149 for complete regulations.

PROTECTIVE GLOVES: Neoprene or rubber gloves with cuffs.

EYE PROTECTION: Protective eyeglasses or chemical safety goggles. Refer to 29 CFR 1910.133 or European Standard EN166.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Coveralls, apron, or other equipment should be worn to minimize skin contact.

WORK / HYGIENIC PRACTICES: Practice safe workplace habits. Minimize body contact with this, as well as all chemicals in general.

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SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR Clear to slight yellow liquid, characteristic pungent odor	VAPOR PRESSURE 26 mm Hg @ 20° C
pH < 1.0	SPECIFIC GRAVITY (WATER = 1) 1.07 - 1.08
BOILING POINT / BOILING RANGE 230° F (110° C)	SOLUBILITY IN WATER Complete
FLASH POINT Non-flammable	VISCOSITY Like that of water
FLAMMABLE LIMITS LEL: Not applicable UEL: Not applicable	VAPOR DENSITY (AIR = 1) > 1
AUTOIGNITION TEMPERATURE Not determined	EVAPORATION RATE (WATER = 1) < 1

SECTION 10 - STABILITY AND REACTIVITY

STABILITY UNSTABLE: STABLE: XXX	CONDITIONS TO AVOID: Extreme temperatures
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INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers, strong acids, strong alkalies

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Decomposition will not occur if handled and stored properly. In case of a fire, oxides of carbon, hydrocarbons, toxic fumes, chlorine and smoke may be produced.

HAZARDOUS POLYMERIZATION MAY OCCUR: WILL NOT OCCUR: XXX	CONDITIONS TO AVOID: None
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SECTION 11 - TOXICOLOGICAL INFORMATION

Hazardous Components	CAS # EINECS #	LD50 of Ingredient (Specify Species and Route)	LC50 of Ingredient (Specify Species)
Hydrochloric acid (a,b,c)	7647-01-0 231-595-7	900mg / kg Oral - rabbit	1108 ppm / 1H Inhalation - mouse
Polyvinylpyrrolidone	9003-39-8 Not found	> 100,000 mg / kg Oral - rat	Not established

SECTION 12 - ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment. Neither COD nor BOD data are available. Based on the chemical composition of this product it is assumed that the mixture can be treated in an acclimatized biological waste treatment plant system in limited quantities. However, such treatment should be evaluated and approved for each specific biological system. None of the ingredients in this mixture are classified as a Marine Pollutant.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: According to the European Waste Catalogue, waste codes are application specific and should be assigned by the user based on the application for which the product is used. Dispose of in accordance with Local, State, and Federal Regulations. Refer to "40 CFR Protection of Environment Parts 260 - 299" for complete waste disposal regulations for corrosive materials. Consult your local, state, or Federal Environmental Protection Agency before disposing of any chemicals.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME: Hydrochloric acid solution	IATA HAZARD CLASS / Pack Group: 8 / II
DOT HAZARD CLASS / Pack Group: 8 / II	IMDG HAZARD CLASS: 8 / II
REFERENCE: 49 CFR 173.154, .202, .242	RID/ADR Dangerous Goods Code: 8
UN / NA IDENTIFICATION NUMBER: UN 1789	UN TDG Class / Pack Group: 8 / II
LABEL: CORROSIVE	
HAZARD SYMBOLS: C	

Note: Transportation information provided is for reference only. Client is urged to consult CFR 49 parts 100 - 177, IMDG, IATA, EU, United Nations TDG, and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

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SECTION 15 - REGULATORY INFORMATION

TSCA (USA - Toxic Substance Control Act)

All components of this product are listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory) or are exempted from listing because a Low Volume Exemption has been granted in accordance with 40 CFR 723.50.

SARA TITLE III (USA - Superfund Amendments and Reauthorization Act)

311/312 Hazard Categories
Immediate health

313 Reportable Ingredients:
None

CERCLA (USA - Comprehensive Response Compensation and Liability Act)

(a) The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) has notification requirements for releases or spills to the environment of the Reportable Quantity (RQ for this mixture = 10,000 lbs) or greater amounts, according to 40 CFR 302.

CPR (Canadian Controlled Products Regulations)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

IDL (Canadian Ingredient Disclosure List)

Components of this product identified by CAS number and listed on the Canadian Ingredient Disclosure List are shown in Section 2.

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

Components of this product identified by CAS number are listed on the DSL or NDSL and may or may not be listed in Section 2 of this document. Only ingredients classified as "hazardous" are listed in Section 2 unless otherwise indicated.

EINECS (European Inventory of Existing Commercial Chemical Substances)

Components of this product identified by CAS numbers are on the European Inventory of Existing Commercial Chemical Substances.

WGK Water Quality Index: 1

RISK PHRASES:

R34 Causes burns.
R37 Irritating to respiratory system.

SYMBOL(S) REQUIRED FOR LABEL

Corrosive



SAFETY PHRASES:

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39 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 whenever possible.)

SECTION 16 - OTHER INFORMATION

Notes & full R-Phrase text

R34 Causes burns.
R37 Irritating to respiratory system.

HMIS HAZARD RATINGS

HEALTH	3	0 = INSIGNIFICANT	3 = HIGH
FLAMMABILITY	0	1 = SLIGHT	4 = EXTREME
REACTIVITY	0	2 = MODERATE	
PERSONAL PROTECTIVE EQUIPMENT	C	Safety Glasses, Gloves, Apron	

REVISION SUMMARY:

This MSDS has been revised in the following sections: No revisions available

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The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.