

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Shandon Formal-Fixx™ Ready-to-use
Shandon Formal-Fixx™ Concentrate

PART NUMBER: RTU 230031, Concentrate 230030

GENERAL USE: Fixative for anatomical pathology

PRODUCT DESCRIPTION: Clear, colorless solution of buffered, phosphate-free formalin

Thermo
ELECTRON CORPORATION

MANUFACTURER'S NAME (Distributor in the Americas)
Thermo Electron Corporation

DATE PREPARED: September 30, 2003
SUPERSEDES: December 1, 2001

Page 1 of 4

ADDRESS (NUMBER, STREET, P.O. BOX)
171 Industry Drive

TELEPHONE NUMBER FOR INFORMATION
(412) 788-1133

(CITY, STATE AND ZIP CODE)
Pittsburgh, PA 15275

COUNTRY
USA

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

TELEPHONE NUMBER FOR INFORMATION
+44 (0) 1928 562547

(CITY, STATE AND ZIP CODE)
Runcorn, Cheshire WA7 1PR

COUNTRY
United Kingdom

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
Methyl alcohol (a,b,c)	1 - 6	67-56-1	200-659-6	F, T	R-11, 23/24/25, 39
Formaldehyde (a,b,c,d,e,f,g,h)	4 - 20	50-00-0	200-001-8	T	R-23/24/25, 34, 40, 43

(a,c) See Section 15

(b) Indicates that the Resource Conservation and Recovery Act (RCRA) has determined the waste for this chemical is listed as hazardous and must be handled according to regulations in 40 CFR 260-281.

(d) Indicates an Extremely Hazardous Substance, if your facility has a designated amount of this substance, Threshold Planning Quantity (TPQ) in inventory, the regulations of 40 CFR 355 and 370 apply, including submission of Tier I / Tier II forms every March 1.

(e) Indicates substance appears on National Toxicology Program (NTP) list of carcinogens, International Agency for Research on Cancer (IARC) list of carcinogens or is regulated by the Occupational Safety and Health Administration (OSHA) as a possible carcinogen.

(f) Indicates listing in Table Z - 2, 29 CFR 1910.1000, value shown is 8-hour Time Weighted Average. See table for acceptable ceiling concentration limits and acceptable maximum peak above the acceptable ceiling concentration.

(g) 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 1000 lbs.

(h) California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986, chemicals known to the state to cause cancer or reproductive toxicity. A person in the course of doing business must warn others who may consume, come into contact with, or otherwise be exposed to this chemical.

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

POISON! DANGER! Suspect cancer hazard. MAY CAUSE CANCER. Risk of cancer depends on level and duration of exposure. VAPOR HARMFUL. Harmful if inhaled or absorbed through skin. Causes irritation to skin, eyes and respiratory tract. Strong sensitizer. May be fatal or cause blindness if swallowed. Cannot be made non-poisonous. Hazard symbols for this product: T. Risk Phrases: R23/24/25, 39

POTENTIAL HEALTH EFFECTS

INHALATION: High concentrations are irritating to the respiratory tract; may cause headache, dizziness, nausea, vomiting. Highly toxic by inhalation.

SKIN: Brief contact may cause slight irritation; prolonged contact may cause moderate reddening, swelling and possible necrosis. Highly toxic by skin contact.

EYES: Contact causes severe irritation and pain associated with redness and swelling of the conjunctiva.

INGESTION: Highly toxic; may cause headache, dizziness, diarrhea and general weakness; large doses may result in red blood cell hemolysis.

CARCINOGENICITY

NTP? Yes IARC MONOGRAPHS? Yes OSHA REGULATED? Yes

Formaldehyde is listed on NTP and IARC list of carcinogens.

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Shandon Formal-Fixx™ Ready-to-use / Concentrate
September 30, 2003

SECTION 4 - FIRST AID MEASURES

INHALATION: Remove affected person to fresh air; provide oxygen if breathing is difficult; if affected person is not breathing, administer CPR and seek emergency 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. Flush eyes with clear running water for 15 minutes while holding eyelids open; if irritation persists, seek medical attention.

INGESTION: Give two glasses of water for dilution; Induce vomiting by sticking fingers down throat; never give anything by mouth to an unconscious person; seek medical attention.

SECTION 5 - FIRE FIGHTING MEASURES

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

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

FIRE FIGHTING PROCEDURES
Self - contained respiratory equipment; cool containers to prevent pressure buildup and possible explosion when exposed to extreme heat.
Caution - material is combustible!

UNUSUAL FIRE AND EXPLOSION HAZARDS
Closed containers can explode due to buildup of pressure when exposed to extreme heat.

HAZARDOUS COMBUSTION PRODUCTS
Smoke, fumes, oxides of carbon

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: COMBUSTIBLE. Evacuate and ventilate area; confine and absorb into absorbent; place material into approved containers for disposal; for spills in excess of allowable limits (RQ) notify the National Response Center (800) 424 - 8802; refer to CERCLA 40 CFR 302 and SARA Title III, Section 313 40 CFR 372 for detailed instructions concerning reporting requirements. Do not discharge into lakes, ponds, streams or public waters. Refer to 40 CFR 355 & 370 for regulations pertaining to items classified as Threshold Planning Quantities as shown in Section 2, Hazardous Ingredients.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: This material is combustible. It should be stored in tightly closed containers in a cool, well ventilated area. Vapor may form explosive mixtures in air. All sources of ignition should be controlled. Avoid inhaling concentrated fumes or vapors.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

HAZARDOUS COMPONENTS	NIOSH (c=ceiling)				ACGIH (c=ceiling)			
	TWA ppm	TWA mg/m3	STEL ppm	STEL mg/m3	TWA ppm	TWA mg/m3	STEL ppm	STEL mg/m3
Methyl alcohol (a,b,c)	--	--	--	--	200	262	250	327
Formaldehyde (a,b,c,d,e,f,g,h)	0.016	--	0.1b (c)	--	--	--	0.3 (c)	0.37 (c)

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.

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Shandon Formal-Fixx™ Ready-to-use / Concentrate
September 30, 2003

Page 3 of 4

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR Clear liquid, pungent formaldehyde odor	VAPOR PRESSURE 52 mm Hg @ 20° C
pH 2.9 - 4.3	SPECIFIC GRAVITY (WATER = 1) 1.034 - 1.096
BOILING POINT / BOILING RANGE 206 - 212° F (96.7 - 100° C)	SOLUBILITY IN WATER Complete
FLASH POINT 160 - 172° F (71 - 78° C) TCC	VISCOSITY Like that of water
FLAMMABLE LIMITS LEL: Not determined UEL: Not determined	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, open flames
---------------------------------------	--

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers, strong acids

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

HAZARDOUS POLYMERIZATION MAY OCCUR: WILL NOT OCCUR: XXX	CONDITIONS TO AVOID: None
---	---------------------------

SECTION 11 - TOXICOLOGICAL INFORMATION

Hazardous Components	CAS # EINECS #	LD50 of Ingredient (Specify Species and Route)	LC50 of Ingredient (Specify Species)
Methyl alcohol (a,b,c)	67-56-1 200-659-6	9100 mg / kg Oral - rat	145,000 ppm / 4H Inhalation - rat
Formaldehyde (a,b,c,d,e,f,g,h)	50-00-0 200-001-8	100 mg / kg Oral - rat	203 mg / m3 Inhalation - rat

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. This product may produce hazardous vapors or fumes in a closed disposal container creating a dangerous environment. Refer to "40 CFR Protection of Environment Parts 260 - 299" for complete waste disposal regulations. Consult your local, state, or Federal Environmental Protection Agency before disposing of any chemicals. Do not flush to sanitary sewer or waterway.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME: Not Regulated (< 25% formaldehyde)	IATA HAZARD CLASS / Pack Group: Not regulated
DOT HAZARD CLASS / Pack Group: Not regulated	IMDG HAZARD CLASS: Not regulated
REFERENCE: Not Applicable	RID/ADR Dangerous Goods Code: Not regulated
UN / NA IDENTIFICATION NUMBER: None	UN TDG Class / Pack Group: Not regulated
LABEL: None Required	
HAZARD SYMBOLS: None	

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.

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Shandon Formal-Fixx™ Ready-to-use / Concentrate
September 30, 2003

Page 4 of 4

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:

(a) A "Yes" in the SARA TITLE III column in Section 2 indicates a toxic chemical subject to annual reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

CERCLA (USA - Comprehensive Response Compensation and Liability Act)

(c) 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 = 2000 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: 2

RISK PHRASES:

R23/24/25 Toxic by inhalation, in contact with skin and if swallowed
R39 Danger of very serious irreversible effects.

SYMBOL(S) REQUIRED FOR LABEL

Toxic



SAFETY PHRASES:

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.)
S51 Use only in well ventilated areas.

SECTION 16 - OTHER INFORMATION

Notes & full R-Phrase text

R11 Highly flammable.
R23/24/25 Toxic by inhalation, in contact with skin and if swallowed
R34 Causes burns.

R39 Danger of very serious irreversible effects.
R40 Possible risk of irreversible effects.
R43 May cause sensitization by skin contact.

HMIS HAZARD RATINGS

HEALTH	3	0 = INSIGNIFICANT	3 = HIGH
FLAMMABILITY	2	1 = SLIGHT	4 = EXTREME
REACTIVITY	0	2 = MODERATE	
PERSONAL PROTECTIVE EQUIPMENT	D	Face Shield, Gloves, Apron	

REVISION SUMMARY:

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

MSDS Prepared by: Chem-Tel, Inc.
1305 N. Florida Ave.
Tampa, Florida USA 33602 (800) 255-3924 Outside USA (813) 248-0573

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.