

CHEMTRONICS[®]

Technical Data Sheet

TDS # 2400

Tun-O-Wash[®] Cleaner

PRODUCT DESCRIPTION

Tun-O-Wash[®] Cleaner is a fast drying, one step precision cleaning and degreasing agent safe for most plastics. Engineered with very low surface tension, this high pressure aerosol formulation flushes areas clean and evaporates instantly leaving no residue.


- Removes encrusted dirt, grease and other contaminants
- Penetrates hard to reach areas
- Evaporates quickly
- Leaves no residues
- Low odor formulation
- Noncorrosive
- Contains no CFCs or HCFCs
- Contains no 1,1,1 Trichloroethane

TYPICAL APPLICATIONS

Tun-O-Wash[®] Cleaner cleans and degreases:

- Contacts
- Label Residue
- Light Fluxes
- Potentiometers
- Printed Circuit Boards
- Selector Switches
- Tape Drives
- Tuners
- Volume and Tone Controls

TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

Boiling Point	141°F Initial
Vapor Density (air=1)	>1
Solubility in Water	20%
Specific Gravity (water = 1@77°F)	0.70
Evaporation Rate (butyl acetate=1)	>1
Appearance	Clear, Colorless Liquid
Odor	Mild
Surface Tension (dynes/cm @21.6°C)	17.3
Flash Point (TCC)	-20.0°F
Flammable	(-29°C)
Kauri-Butanol (KB) Number	50
Shelflife	5 years
RoHS/WEEE Status	

COMPATIBILITY

Tun-O-Wash[®] Cleaner is generally compatible with most materials used in the electronics industry. As with any cleaning agent, compatibility must be determined on a non-critical area prior to use.

<u>Material</u>	<u>Compatibility</u>
ABS	Good
Buna-N	Good
EPDM	Poor
Graphite	Excellent
HDPE	Excellent
Kynar™	Fair
LDPE	Fair
Lexan™	Fair
Neoprene	Fair
Noryl®	Good
Nylon 66™	Excellent
Cross-Linked PE	Excellent
Polypropylene	Good
Polystyrene	Non-Compatible
PVC	Good
Silicone Rubber	Non-Compatible
Teflon™	Excellent
Viton™	Excellent

Performance	
Product Required for Water Soluble Oil Removal (mg solvent / 1 mg oil)	
Tun-O-Wash Cleaner	33
Conventional CFC Cleaner	94
Water Soluble Oil Removal Rate (mg / in² sec.)	
Tun-O-Wash Cleaner	11
Conventional CFC Cleaner	5

AVAILABILITY

ES2400 12.5 oz. Aerosol

ENVIRONMENTAL IMPACT DATA

ENVIRONMENTAL IMPACT DATA			
CFC	0.0%	VOC	95.7%
HCFC	0.0%	HFC	0.0%
CL Solv.	0.0%	ODP	0.0

CFC, HCFC, CL. SOLV., VOC, and HFC numbers shown are the content by weight. Ozone depletion potential (ODP) is determined in accordance with the Montreal Protocol and U.S. Clean Air Act of 1990. The ODP of this product is 0.0. It is the sum of the ODP of the substances that may contribute to the depletion of stratospheric ozone, based upon the weight of each substance in the product's formulation.

NOTE: This information is believed to be accurate. It is intended for professional end users having the skills to evaluate and use the data properly. CHEMTRONICS® does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.

USAGE INSTRUCTIONS

For industrial use only.

Read MSDS carefully prior to use.

Spray 4-6 inches from surface to clean. Wash parts from top to bottom, allowing the liquid to flush away dirt and dissolved grease. For precise application use attached extension tube. Product is Extremely Flammable - Do not use near sources of ignition and energized equipment.

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Information: 800-TECH-401

Product Identification

TUN-O-WASH® CLEANER
(Formerly CFC Free Tun-O-Wash)

Product Code: ES2400, ES2400C

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Wt. % Range
Isohexane, a mixture of:		
2-methylpentane	107-83-5	1.0-46.0
3-methylpentane	96-14-0	1.0-25.0
2,3-Dimethylbutane	79-29-8	1.0-25.0
2,2-Dimethylbutane	75-83-2	1.0-25.0
n-hexane	110-54-3	0.1-3.0
Denatured alcohol a mixture of:		
Ethanol	64-17-5	1.0-25.0
Isopropanol	67-63-0	1.0-20.0
Ethyl acetate	141-78-6	0.1-10.0
1,1-difluoroethane	75-37-6	5.0-25.0
Carbon dioxide	124-38-9	1.0-5.0

SECTION 3: HAZARD IDENTIFICATION

Emergency Overview: Clear, colorless liquid with mild hydrocarbon solvent. This product is extremely flammable. Liquid may irritate eyes and skin under repeated or prolonged exposure. Breathing high concentrations of product may produce drowsiness and a headache.

Potential Health Effects:

Eyes: Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation.

Skin: Contact causes skin irritation.

Ingestion: Harmful if swallowed. Irritating to the mouth, throat and stomach. May cause vomiting. **Inhalation:** Harmful if inhaled. High concentrations in immediate area can displace oxygen and cause dizziness, unconsciousness and even death with longer exposure. Keep people away from such vapors without self-contained breathing apparatus. **Pre-Existing Medical Conditions Aggravated by Exposure:** Heart, lung, skin, eye.

SECTION 4: FIRST AID MEASURES

Eyes: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined and tested by medical personnel if irritation develops or persists.

Skin: Wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists. Wash clothing separately before reuse.

Ingestion: If swallowed, do not induce vomiting. Keep head below knees to minimize chance of aspirating material into the lungs. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: -20F (-29C) TCC (isohexane) **LEL/UEL:** 1.2/7.7 (% by volume in air)

Extinguishing Media: Use alcohol foam, carbon dioxide or water spray when fighting fires involving this material. **Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus (pressure demand, MSHA/NIOSH approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Large Spills: Shut off leak if possible and safe to do so. Wear self-contained breathing apparatus and appropriate personal protective equipment. Absorb spill with inert material (i.e. dry sand or earth), then place in a chemical waste container for proper disposal. Do not flush to sewer. Avoid runoff into storm sewers and ditches that lead to waterways. **Small Spills:** Absorb spill with inert material (i.e. dry sand or earth), then place in a chemical waste container for proper disposal.

SECTION 7: HANDLING AND STORAGE

Avoid prolonged or repeated contact with skin, eyes or clothing. Wash hands before eating. Use with adequate ventilation. Avoid breathing product vapor. Do not reuse this container. Store in a cool dry place, away from heat, sparks or flames. Keep container tightly closed when not in use. Do not store in direct sunlight.

KEEP OUT OF REACH OF CHILDREN.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

CHEMICAL NAME	ACGIH TLV	OSHA PEL	STEL / OTHER
2-methylpentane	500	NA	1000
3-methylpentane	500	NA	1000
2,3-Dimethylbutane	500	NA	1000
2,2-Dimethylbutane	500	NA	1000
n-Hexane	50 ppm	500 ppm	NA
Denatured alcohol, a mixture of:			
Ethanol	1000 ppm	1000 ppm	NA
Isopropanol	200ppm	400ppm	400ppm
Ethyl acetate	400 ppm	400 ppm	NA
1,1-difluoroethane	NA	NA	1,000 ppm (DuPont)

Work/Hygienic Practices: Good general ventilation should be sufficient to control airborne levels. Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. If vapor concentration exceeds TLV, use NIOSH approved organic vapor cartridge respirator. Wear safety glasses with side shields, goggles and rubber or other chemically resistant gloves when handling this material.

NFPA and HMIS Codes:	NFPA	HMIS
Health	1	1
Flammability	3	3
Reactivity	1	1
Personal Protection	-	B

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Clear, colorless liquid
Odor: Mild hydrocarbon solvent
pH: NA
Vapor Pressure: 198 mm Hg @ 68 F (liquid)
Vapor Density: 3 (isohexanes) (Air 1)

Solubility in Water: Negligible
Specific Gravity: 0.70 @ 68F
Evaporation Rate: <1 (Butyl acetate=1)
Boiling Point: 122° F (50C)
Percent Volatile: 100

SECTION 10: STABILITY AND REACTIVITY

Stability: This product is stable. Conditions to Avoid: Do not spray near open flames, red hot surfaces or other sources of ignition.
Incompatibility: Do not mix powdered alkali and alkaline earth metals or strong oxidizing agents.
Products of Decomposition: Thermal decomposition may release carbon monoxide, carbon dioxide and incompletely burned hydrocarbons.
Hazardous Polymerization: Will not occur. Conditions to avoid: NA

SECTION 11: TOXICOLOGICAL INFORMATION

Inhalation:
 Ethanol LC50 rats 20,000 ppm/10 hr
 Ethyl acetate LC50 rats 200gm/m³
 Isopropanol LC50 rats 12,000 ppm/8 hrs
 1,1-difluoroethane * Rat ALC 383,000 ppm/4hrs

Ingestion:
 Ethanol LD50 rats 7060 mg/kg
 Ethyl acetate LD50 rats 5620 mg/kg
 Isopropanol LD50 rats 5,800mg/kg
 1,1-difluoroethane * Rat ALD >1500 mg/kg

Skin:
 Ethanol rabbit 400 mg open MLD
 Ethyl acetate LD50 rabbit 500 mg SEV
 Isopropanol rabbit >20 mL/kg MLD

Eye:
 Ethanol rabbit SL-MOD

*Information from Dupont.
 Cancer Information: No ingredients listed as human carcinogens by NTP or IARC
 Reproductive effects: none Teratogenic effects: none Mutagenic effects: none

SECTION 12: ECOLOGICAL INFORMATION

Environmental Impact Information
 Avoid runoff into storm sewers and ditches which lead to waterways. Water runoff can cause environmental damage.

REPORTING

US regulations require reporting spills of this material that could reach any surface waters. The toll free number for the US Coast Guard National Response Center is: **1-800-424-8802**

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in accordance with all federal, state and local regulations.

SECTION 14: TRANSPORTATION INFORMATION

Proper Shipping Name	UN Number	Class	Sub. Risk	Pkg. Group	Hazard Label	Pkg. Instr.	Max. Quantity
<u>Air:</u> Aerosols Flammable	UN 1950	2.1	NA	NA	Flammable Gas	203/ Y203	75/ 30 kg
<u>Ground:</u> Consumer Commodity ORM-D	NA	NA	NA	NA	ORM-D	Pkg. Auth.	173.306

SECTION 15: REGULATORY INFORMATION

SECTION 313 SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40CFR372). This information should be included on all MSDSs copied and distributed for this material.

Chemical Name	CAS No.	Wt. % Range
n-hexane	110-54-3	0.1-3.0

TOXIC SUBSTANCES CONTROL ACT (TSCA). All ingredients of this product are listed on the TSCA Inventory.

WHMIS: Class A; Class B5; Class D2B

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16: OTHER INFORMATION

Product is a Level 3 aerosol. Do not puncture or incinerate containers. Normal ventilation for standard manufacturing practices is usually adequate. Local exhaust should be used when large amounts are released. NOTE: This MSDS is applicable to all product containers with date codes of 01175 or later.

To the best of our knowledge, the information contained herein is accurate. However, all materials may present unknown hazards and should be used with caution. In particular, improper use of our products and their inappropriate combination with other products and substances may produce harmful results which cannot be anticipated. Final determination of the suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that may exist.