

Section 1. Product and Company Identification

Product Name : WET-SOL "PLUS" UPPER PACKING LUBRICANT
Validation Date : 05/12/2011
Emergency Telephone Number : 1-800-535-5053
Information Telephone Number : (616) 672-7503
Fax : (616) 685-0773
Chemtrec Phone : 1-800-424-9300; Internationally call 703-527-3887
MSDS authored by: : INGERSOLL-RAND PLC
 800 Beaty Street, Davidson, NC 28036

Additional Information

Manufacturer : Great Lakes Chemical Corporation, A Chemtura Company
 P.O. Box 2200
 West Lafayette, Indiana 47996-2200
GLCC Product Name : Kronitex TCP
Synonyms : Tricresyl phosphate; Tritolyl phosphate
GLCC MSDS Number : 00668
Telephone Number : 1-800-949-5167
Product Use : General purpose flame retardant plasticizer for vinyl; processing aid and plasticizer for NBR and SBR synthetic and natural rubbers.

Section 2. Composition, Information on Ingredients

Ingredient Name	CAS Number	Percentage	Exposure Limits
Tricresyl Phosphate	1330785	100%	Y (Hazardous) Not established (OSHA PEL TWA) Not established (OSHA PEL STEL) Not established (OSHA PEL CEIL) Not established (ACGIH TLV TWA) Not established (ACGIH TLV STEL) Not established (ACGIH TLV CEIL)

* Indented chemicals are components of previous ingredient.

Section 3. Hazards Identification

Emergency Overview : Colorless liquid.
 No Odor.
 May cause mucous membrane and upper respiratory tract irritation.
 Mist generated by heat, violent agitation or spraying will irritate skin, eyes, nose, throat and respiratory system.

Relevant Routes of Exposure : Ingestion, inhalation and skin absorption

Signs and Symptoms of Overexposure : General reddening and irritation to the skin and eyes, mucous membrane irritation, upper respiratory tract irritation.

Medical Conditions Generally Aggravated By Exposure : None reported

Potential Health Effects : See Section 6 for additional information.

Eye Exposure : May cause mild eye irritation.

Skin Exposure : Not expected to be a hazard in normal industrial use.

Ingestion : Not expected to be a hazard in normal industrial use.

Inhalation : May cause mucous membrane and upper respiratory tract irritation.

Chronic Health Effects : May cause adrenal, reproductive and developmental effects based on animal data.

Carcinogenicity

NTP	: No
IARC	: No
OSHA	: No
ACGIH	: No
OTHER	: No

Section 4. First Aid Measures

Eye contact	: Flush with large volumes of water for at least 15 minutes. Get medical attention.
Skin contact	: While removing clothing, wash with large volumes of soap and water for at least 15 minutes. If irritation develops, get medical attention.
Ingestion	: If conscious, give person 1 to 2 glasses of water. Get medical attention immediately.
Inhalation	: Remove person to fresh air. Get medical attention.
Antidotes	: No information available.
Notes to Physicians and/or Protection for First-Aiders	: May be irritating to skin, mucous membranes and eyes. Though an organophosphate, it has only extremely weak anticholinesterase activity which should not require specific treatment (e.g. atropine and cholinesterase regenerators). Treatment is supportive and symptomatic after terminating exposure through washing, emesis or lavage. If inhalation exposure is severe, observation for up to 72 hours for delayed onset of severe pulmonary edema should be considered.

Section 5. Fire-fighting Measures

Fire and Explosive Properties in Air (% by Volume)	: Not available.
Flashpoint	: 225° C (437° F) (PMCC)
Autoignition Temperature	: 607° C (1125° F)
Extinguishing Media	: All conventional media are suitable.
Fire Fighting Instructions	: Wear a self-contained breathing apparatus and protective clothing to prevent skin and eye contact in fire situations.
Unusual Fire and Explosion Hazards	: Not flammable but combustible if exposed to external flame. No explosion hazard.
Flammability Classification	: Non-flammable liquid.
Known or Anticipated Hazardous Products of Combustion	: Oxides of phosphorus, Carbon monoxide and carbon dioxide.

Section 6. Accidental Release Measures

Accidental Release Measures	: Wearing appropriate personal protective equipment, collect spill with the aid of an inert absorbent and place in suitable labeled containers for disposal.
Personal Precautions	: See Section 8.
Environmental Precautions	: No information available.

Section 7. Handling and Storage

Handling	: Use appropriate personal protection equipment. Avoid eye, skin and clothing contact. Do not breathe mist or vapor. Avoid repeated and prolonged contact. Avoid the generation of aerosols from spraying, pouring or vigorous agitation whenever possible, particularly if product is heated. If the generation of airborne materials cannot be avoided, exhaust ventilation and/or personal protective equipment as described in Section 8 should be used.
Storage	: Store in a cool, dry, well-ventilated area away from incompatible materials. Keep container tightly closed. Protect containers against damage.
Other Precautions	: Avoid contact of material with heat and open flame.

Section 8. Exposure Controls / Personal Protection

Engineering Controls	: Avoid the generation of airborne mist where possible. When processing at high temperatures, local exhaust ventilation or personal protective equipment as indicated below may be necessary to control exposure to a slightly irritating by product.
Ventilation Requirements	: Use local ventilation to keep levels below established threshold values. Use mechanical ventilation for general area control.
Personal Protective Equipment	
Eye/Face Protection	: Chemical safety goggles.
Skin Protection	: Gloves - butyl or nitrile rubber. Clothing designed to minimize skin contact. Wear an apron or impervious clothing and rubber boots if splashing is expected.
Respiratory Protection	: Wear a NIOSH/MSHA approved organic cartridge respirator if misting or vapor occurs, or there is potential for airborne exposures to exceed established threshold values. Consult the OSHA respiratory protection information located at 29CFR 1910.134 and the American National Standard Institute's Practices of Respiratory Protection Z88.2. Wear a NIOSH/MSHA approved self-contained breathing apparatus in emergency situations.
Other Protective Clothing or Equipment:	: No information available.
Exposure Guidelines	: See Section 2.
Work Hygienic Practices	: Wash thoroughly after handling. Wash contaminated clothing before reuse.

Section 9. Physical and Chemical Properties

Physical Appearance	: Colorless liquid	Percent Volatile	: 0
Boiling Point	: 241 -255° C at 4 mm Hg	pH Value:	: Not available
Bulk Density	: Not available	pH Concentration	: Not available
Color	: Colorless	Physical State	: Liquid
Decomposition Temperature	: >300° C	Reactivity in Water	: Not water reactive
Evaporation Rate	: Not available	Saturated Vapor Concentration	: Not available
Freezing Point	: <- 40° C	Softening Point	: Not available
Heat Value	: Not available	Solubility in Water	: Insoluble
Melting Point	: Not available	Specific Gravity or Density (Water=1)	: 1.16 - 1.18 at 20° C
Molecular/Chemical Formula	: C21H21O4P	Vapor Density	: Not available
Molecular Weight	: 368.37	Vapor Pressure	: 0.033 mmHg at 150° C (302° F)
Octanol/Water Partition Coefficient	: Not available	Viscosity	: 70 cSt at 25° C
Odor	: Odorless	Volatile Organic Compounds	: Not available
Odor Threshold	: Not available	Water/Oil Distribution Coefficient	: Not available
Particle Size	: Not available	Weight Per Gallon	: Not available

Section 10. Stability and Reactivity

Stability	: Stable under normal conditions of handling and use.
Conditions to Avoid	: Excessive heat and fire. Hydrolysis in water produces phenols.
Incompatibility With Other Materials	: None known
Hazardous Decomposition Products	: Thermal decomposition may produce the following: Oxides of phosphorus Carbon monoxide and carbon dioxide
Hazardous Polymerization	: Will not occur
Conditions to Avoid	: None

Section 11. Toxicological Information

Value (LD50 OR LC50)	Animal	Routes	Components
11.1 mg/L	Rat	Acute Inhalation	Tricresyl phosphate
>10,000 mg/kg	Rabbit	Acute Dermal	Tricresyl phosphate
>5,000 mg/kg	Rat	Acute Oral	Tricresyl phosphate

Toxicological Information:

This product has low acute oral and dermal toxicity and is minimally irritating to the eyes and non-irritating to the skin. Product may be irritating to the respiratory system and mucous membranes.

Historical data on tricresyl phosphate have shown neurological effects, widely viewed by experts as resulting from varying levels of ortho-cresyl phosphates, known neurotoxins. However, recent data on tricresyl phosphate, low in ortho-cresyl phosphates, have not shown neurotoxic effects. Current Great Lakes Chemical Corporation branded products of tricresyl phosphate were evaluated for acute delayed neurotoxicity in hens orally administered a single dose of 2000 mg/kg of body weight. Brain NTE activity was minimally reduced in all samples tested, with NTE inhibition levels being <34%. According to EPA criteria (1994) NTE inhibition at levels <34% is considered not be of concern. One hen in one test group did show axonal degeneration in several sections of the peripheral nerve. However, significance of the observed low-grade isolated lesion to treatment is doubtful. Based on this data, it is concluded that this product would not possess inherent neurotoxic potential. Administration of 0.1% or greater TCP in the diet to male and female mice resulted in impaired fertility in both sexes. There were dose-related histopathological effects on testes and adrenals. Sperm motility was reduced at dietary levels as low as 0.05% (62.5 mg/kg).

Tricresyl phosphate was evaluated for developmental toxicity and teratogenic potential by oral gavage (0, 20, 100, 400, or 750 mg/kg/day) in mated female rats during Gestation Days 0-19. At doses of 100 mg/kg/day and higher, increased salivation was observed post dosing. At doses of 400 mg/kg/day alopecia (sparse amounts of hair) was observed on the ventral surface and hindlimbs as well as unkempt appearance. The maternal NOEL was identified at 20 mg/kg/day. Although fetal body weights were reduced compared to the control group at all dose levels (20, 100, 400, and 750 mg/kg/day), a developmental delay (incomplete ossification) was only identified at the highest dose tested of 750 mg/kg/day. Due to the effect on fetal body weights a NOEL for developmental effects could not be determined.

Other acute and chronic health hazards, as well as target organs, are unknown.

Additional Information

Note: Epidemiology studies completed in 1977 and 1985 of current and former workers at the production facility where Kronitex, Durad, and natural and synthetic triaryl phosphate esters are manufactured have not demonstrated any unusual pattern of mortality or disease.

Section 12. Ecological Information

Ecological Information : LC50 in rainbow trout (96H) = 0.75 mg/L
EC50 in daphnia magna (48H) = 146 ug/L
NOEC in daphnia magna (48H) = 31 ug/L
LC50 in fathead minnow (96H) >100 mg/L
LC50 in bluegill sunfish (96H) = 7,000 mg/L
NOAEL in *Selenastnim capricomutum* (96H) = 2,500 ug/L
Half life = 79.8 days (pH 4, 15° C); 61.6 days (pH 4, 25° C)
Half life = 49.4 days (pH 7, 15° C); 44.4 days (pH 7; 25° C)
Half life 15.3 days (pH 9, 15° C); 6.56 days (pH 9, 25° C)
Avoid releasing to the environment.

Section 13. Disposal Considerations

Disposal Considerations : Dispose of waste at an approved chemical disposal facility in compliance with all current Local, State/Province, Federal/Canadian laws and regulations.
If the product was supplied in a single use container, care should be taken to dispose of the container in a responsible manner and in accordance with applicable regulations. Label precautions should be followed for any residual material in the container.

Section 14. Transport Information

U.S. DOT

Proper Shipping Name : Environmentally hazardous substances, liquid, n.o.s. (Tricresyl Phosphate less than 1% Ortho-Isomer)

Hazard Class	: 9	ID Number	: UN3082
Packing Group	: III	Labels	: 9, Marine Pollutant
Special Provisions	: 8,IB3,T4,TP1,TP29, 146	Packaging Exceptions	: 155
Non-Bulk Packaging	: 203	Bulk Packaging	: 241
Passenger Air/Rail Limit	: No Limit	Air Cargo Limit	: No Limit
Vessel Stowage	: A	Other Stowage	: N/A
Reportable Quantity	: N/A		

AIR - ICAO OR IATA

Proper Shipping Name : Environmentally hazardous substances, liquid, n.o.s. (Tricresyl Phosphate less than 1% Ortho-Isomer)

Hazard Class	: 9	ID Number	: UN3082
Subsidiary Risk	: N/A	Packing Group	: ID
Hazard Labels	: Micellaneous, Marine Pollutant	Packaging Exceptions	: 914;LQ Y9I4
Air Passenger Limit Per Package	: See Below	Packing Instruction - Cargo	: 914
Air Cargo Limit Per Package	: No Limit	Special Provisions Code	: A97

WATER - IMDG

Proper Shipping Name : Environmentally hazardous substances, liquid, n.o.s. (Tricresyl Phosphate less than 1% Ortho-Isomer)

Hazard Class	: 9	ID Number	: UN3082
Packing Group	: III	Subsidiary Risk	: N/A
Medical First Aid Guide Code	: NA		

Additional Information

Air Maximum Net Quantity: No Limit; LQ 30kg G
Emergency Procedures Code: F-A, S-F
Marine Pollutant

Section 15. Regulatory information

U.S Federal Regulations : The components of this product are either on the TSCA Inventory or exempt (i.e. impurities, a polymer complying with the exemption rule at 40 CFR 723.250) from the Inventory.

State Regulations : New Jersey Right To Know Hazardous Substance List. (1% reporting limit)

International Regulations: : This material (or each component) is listed on the following inventories:

Canada - DSL
EIJ-EINECS
Australia - AICS
Japan - ENCS
Korea - ECL
Philippines - PICCS
China-List I

Canadian Disclosure List (1%) - Tricresyl phosphate
Canadian WHMIS Hazard Class and Division D.2.a, D.2.b.

SARA Hazards

Acute	: Yes	Chronic	: Yes
Reactive	: No	Fire	: No
Pressure	: No		

Additional Information

Note: The above regulatory information represents only selected regulations and is not meant to be a complete list.

Section 16. Other information

NFPA Codes	:		
Health	:	1	Flammability : 1
Reactivity	:	0	Other : 0
HMS Codes	:		<i>* indicates chronic health hazard.</i>
Health	:	1*	Flammability : 1
Reactivity	:	0	Protection : X
Label Statements	:	Not available	
Other Information	:	Abbreviations: (L) = Loose bulk density in g/ml LOEC = Lowest observed effect concentration MATC = Maximum acceptable toxicant concentration NA = Not available N/A = Not applicable NL = Not limited NOAEL = No observable adverse effect level NOEC = No observed effect concentration NOEL = No observable effect level NR = Not rated (P) = Packed bulk density in g/ml PNOR = Particulates Not Otherwise Regulated PNOS = Particulates Not Otherwise Specified REL = Recommended exposure limit TS = Trade secret	

Additional Information:

Information on this form is furnished solely for the purpose of compliance with OSHA's Hazard Communication Standard, 29CFR 1910.1200 and the Canadian Hazardous Products Act and associated Controlled Products Regulations and shall not be used for any other purpose.