



MATERIAL SAFETY DATA SHEET

MSDS Number: 00896
Product Name: FIREMASTER® 550

Effective Date: 06/20/2006
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SECTION I - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: FIREMASTER® 550
Supplier: Chemtura USA Corporation
Address: 199 Benson Road **City:** Middlebury
State: Connecticut **Zip:** 06749
Emergency Telephone Number: 1-800-949-5167
Information Telephone Number: 1-765-497-6100 **Fax:** 1-765-497-6123
Chemtrec Phone: 1-800-424-9300; **Internationally call 703-527-3887**
Effective Date: 06/20/2006 **Supersede Date:** 11/28/2005
MSDS Prepared By: Chemtura Product Safety Group
Synonyms: CN-2635
Product Use: Flame retardant in polymer matrices
Chemical Name: Mixture
Chemical Family: Halogenated aryl esters/Aromatic phosphate Blend

Additional Information

Manufacturer:
Great Lakes Chemical Corporation, A Chemtura Company
P.O. Box 2200
West Lafayette, Indiana 47996-2200

SECTION II - COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS NO.	%	EXPOSURE LIMITS
*Component B Triaryl phosphate, isopropylated	TS TS	40 - 60 24 - 51	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)
Triphenyl phosphate	115866	6 - 24	N (Hazardous) 3 mg/m3 (OSHA PEL TWA) Not established (OSHA PEL STEL) Not established (OSHA PEL CEIL) 3 mg/m3, A4 (ACGIH TLV TWA) Not established (ACGIH TLV STEL) Not established (ACGIH TLV CEIL)
Component A	TS	40 - 60	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.

Additional Information

Additional exposure limits for triphenyl phosphate:
NIOSH REL TLV = 3 mg/m3

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SECTION III - HAZARDS IDENTIFICATION

Emergency Overview: Amber liquid
Mild odor
May cause allergic skin reaction.
Mists generated by heat, violent agitation or spraying will irritate skin, eyes, nose, throat and respiratory system.
Toxic to aquatic organisms.

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: Dermatitis

Potential Health Effects: See Section XI for additional information.

Eyes: May cause eye irritation.

Skin: May cause allergic skin reaction.
May cause skin irritation.

Ingestion: May cause nervous system effects.

Inhalation: May cause respiratory tract irritation, mucous membrane irritation and nervous system effects.

Chronic Health Effects: Long term oral overexposure may cause kidney damage based on animal data. Prolonged or repeated exposure may cause liver, adrenal, thymus, reproductive, developmental and neurological effects based on animal data.

Carcinogenicity:

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

Additional Information

No information available

SECTION IV - FIRST AID MEASURES

Eyes: Flush with large volumes of water for at least 15 minutes. Get medical attention.

Skin: 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: No information available

Additional Information

No information available

SECTION V - FIRE FIGHTING MEASURES

Flammable Limits in Air (% by Volume): Not available

Flash Point: >200 degrees C

Autoignition Temperature: Not available

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:

Flammability Classification: Under fire conditions, toxic and irritating fumes may be emitted.
Non-flammable liquid

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SECTION V - FIRE FIGHTING MEASURES

Known or Anticipated Hazardous

Products of Combustion: Hydrogen bromide and/or bromine
Oxides of phosphorus
Carbon monoxide and carbon dioxide

Additional Information

No information available

SECTION VI - 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.
Wash spill area after pick-up is complete, collecting all clean up water for appropriate disposal.

Personal Precautions: See Section VIII.

Environmental Precautions: Avoid releasing to the environment.
Do not allow spills to enter surface waters (streams, rivers, ponds, lakes, etc.).

Additional Information

No information available

SECTION VII - HANDLING AND STORAGE

Handling: Use appropriate personal protection equipment.
Avoid eye, skin and clothing contact.
Do not breathe mist or vapor.

Storage: Avoid repeated and prolonged contact.
Store in a cool, dry, well-ventilated area away from incompatible materials.
Keep container tightly closed.
Do not store above 180 degrees F.

Other Precautions: No information available

Additional Information

No information available

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Adequate general ventilation is recommended when handling to control airborne levels.

Ventilation Requirements: Use local exhaust to minimize misting and vapor.
Use mechanical ventilation for general area control.

Personal Protective Equipment:

Eye/Face Protection: Chemical safety glasses with side shields or chemical safety goggles

Skin Protection: Chemical resistant gloves
Clothing designed to minimize skin contact

Respiratory Protection: Wear a NIOSH/MSHA approved organic/acid gas cartridge respirator if misting or vapor occurs.
Consult the OSHA respiratory protection information located at 29CFR 1910.134 and the American National Standard Institute's Practices of Respiratory Protection Z88.2.

Other Protective Clothing or Equipment: No information available

Exposure Guidelines: See Section II.

Work Hygienic Practices: Wash thoroughly after handling.
Wash contaminated clothing before reuse.

Additional Information

No information available

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SECTION IX - PHYSICAL & CHEMICAL PROPERTIES

Appearance:	Amber liquid	Percent Volatile:	<0.1
Boiling Point:	Not available	pH Value:	Not available
Bulk Density:	Not available	pH Concentration:	Not available
Color:	Amber	Physical State:	Liquid
Decomposition Temperature:	Not available	Reactivity in Water:	Not water reactive
Evaporation Rate:	Not available	Saturated Vapor Concentration:	Not available
Freezing Point:	Not available	Softening Point:	Not available
Heat Value:	Not available	Solubility in Water:	Insoluble
Melting Point:	Not available	Specific Gravity or Density (Water=1):	1.41 at 25 degrees C
Molecular/Chemical Formula:	TS	Vapor Density:	Not available
Molecular Weight:	NA	Vapor Pressure:	Not available
Octanol/Water Partition Coefficient:	Not available	Viscosity:	314 cps
Odor:	Mild	Volatile Organic Compounds:	Not available
Odor Threshold:	Not available	Water/Oil Distribution Coefficient:	Not available
Particle Size:	Not available	Weight Per Gallon:	Not available

Additional Information

No information available

SECTION X - STABILITY AND REACTIVITY

Stability:	Stable under normal conditions of handling and use.
Conditions to Avoid:	None
Incompatibility With Other Materials:	Strong oxidizers Strong acids Strong alkalis can hydrolyze bromine.
Hazardous Decomposition Products:	Thermal decomposition may produce the following: Hydrogen bromide and/or bromine Oxides of phosphorus Carbon monoxide and carbon dioxide
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	None

Additional Information

No information available

SECTION XI - TOXICOLOGICAL INFORMATION

VALUE (LD50 OR LC50)	ANIMAL	ROUTES	COMPONENTS
>200 mg/L/1H	Rat	Acute Inhalation	Similar compound to Component B
>2,000 mg/kg	Rabbit	Acute Dermal	Component A
>2,000 mg/kg	Rabbit	Acute Dermal	Similar compound to Component B
>5,000 mg/kg	Rat	Acute Oral	Similar compound to Component B
>5,000 mg/kg	Rat	Acute Oral	Component A

Toxicological Information:

The toxicological properties of this blend have not been determined. Component information is listed below.

Component A:

This material is not expected to be acutely harmful by ingestion or skin absorption.

This material has been found to be a slight eye irritant in rabbits. (Maximum Average Score in Rabbits = 6.7)

This material has been found to be a slight skin irritant in rabbits. (Primary Irritation Index = 0.4)

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In a M & K sensitization assay, this material was found to be a sensitizer. In a Buehler test, this material was not sensitizing. When tested in dimethyl sulphoxide, this material showed no evidence of mutagenic activity in Salmonella typhimurium and Escherichia coli bacterial systems.

This material did not show any evidence of clastogenic or polyploidy-inducing activity in an in vitro cytogenic test system. In a 28-day sub-chronic oral toxicity study in rats in which neurotoxicity was evaluated, no indications of neurotoxicity were observed at levels of 160, 400 and 1,000 mg/kg/day. However, at 1000 mg/kg/day kidney effects were observed. The NOEL for systemic toxicity was established at 160 mg/kg/day.

Component B:

Based on a similar material, this material has low acute oral and dermal toxicity. Primary eye and skin irritation studies in rabbits on a similar material did not result in eye or skin irritation. However, eye and skin irritation may be possible.

Prolonged or continuous contact with skin will cause irritation. This material may be irritating to the respiratory system and mucous membranes. Breathing or swallowing large quantities may cause neurological effects. Repeated exposure over a prolonged period of time may cause neurological effects.

A reproductive/developmental toxicity screening study (OECD 421) and a combined repeated dose toxicity study with reproductive/developmental screening (OECD 422) were conducted using this material or a chemical that is related to this product. Studies were performed on rats using oral administration of 0, 25, 100, or 400 mg/kg/day. The number of successful pregnancies and viable offspring were substantially reduced at the mid and high doses. In addition, reduced weight and/or histopathological effects were noted in the following organs: thymus and male reproductive organs (testes and epididymides) in the high-dose group, liver and/or adrenal effects in at least one sex of the high- and mid-dose groups and female reproductive organs and adrenals of females at all doses. A NOAEL could not be determined for this study.

In an in vitro mammalian chromosome aberration test using human peripheral blood lymphocytes with and without Aroclor-included S9 activation, a similar material was concluded to be negative for the induction of structural and numerical chromosome aberrations.

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

Additional Information

No information available

SECTION XII - ECOLOGICAL INFORMATION

Ecological Information:

The following ecological information is offered:

Component A:

The following environmental information is offered for this product:

EC50 in Daphnia magna (24H) = 1.2 mg/L

EC50 in Daphnia magna (48H) = 0.42 mg/L

EC50 in Selenastrum capricornutum (96H) >5.1 mg/L

LC50 in Rainbow Trout (Oncorhynchus mykiss) (96H) >12 mg/L

The EC50 (respiration inhibition) of activated sewage sludge has been determined to be >100 mg/L for a three hour contact time. This material has not been found to be inhibitory to activated sewage sludge bacteria.

The soil adsorption coefficient (KOC) for this material has been determined to be greater than 28840 at 20 degrees C. This result indicates that mobility in soil for this material is unlikely.

In a flow-through bioconcentration test with rainbow trout (Oncorhynchus mykiss), steady-state BCF values ranged from 1.74 to 6.19, showing that this material did not significantly bioconcentrate.

In a Shake Flask Die-Away Test, this material had half-lives in active water and active sediment test systems of 3.5 days and 8.5 days, respectively. Based on this

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SECTION XII - ECOLOGICAL INFORMATION

information, this material is expected to readily biodegrade.

In a closed bottle test, this material attained 6% biodegradation within 28 days.

In an abiotic hydrolysis study, the half-life of this material has been determined to be greater than 1 year at 25 degrees C at pH values of 4,7 and 9.

EPA has expressed concerns that lower brominated degradation products in water may cause environmental hazards.

Environmental Statements: This substance may be toxic to some aquatic organisms.

Environmental Hazard Precautionary Statements:
Notice to users: Do not release to water.

Component B:

LC50 in rainbow trout (96H) = 1.6 (1.2 - 2.2) mg/L

LC50 in fathead minnow (96H) = 10.8 (8.0 - 14.6) mg/L

EC50 in Daphnia magna (48H) = 2.44 (1.93 - 3.08) mg/L

NOAEC in algae (72H) = 0.31 mg/L

NOAEC in algae (96H) = 1.3 mg/L

Half life at pH 7 = 42.6 days (15 degrees C) and 18.5 days (25 degrees C)

Half life at pH 9 = 16.5 days (15 degrees C) and 6.05 days (25 degrees C)

Avoid releasing to the environment.

Additional Information

No information available

SECTION XIII - 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.

Additional Information

No information available

SECTION XIV - TRANSPORT INFORMATION

U.S. DOT

Proper Shipping Name:	Environmentally hazardous substance, liquid, n.o.s. (Contains triaryl phosphates, isopropylated and triphenyl phosphate)		
Hazard Class:	9	ID Number:	UN3082
Packing Group:	III	Labels:	Miscellaneous, Marine Pollutant
Special Provisions:	8, 146, IB3, T4, TP1, TP29	Packaging Exceptions:	155
Non-Bulk Packaging:	203	Bulk Packaging:	241
Passenger Air/Rail Limit:	None	Air Cargo Limit:	None
Vessel Stowage:	A	Other Stowage:	N/A
Reportable Quantity:	N/A		

AIR - ICAO OR IATA

Proper Shipping Name:	Environmentally hazardous substance, liquid, n.o.s. (Contains triaryl phosphates, isopropylated and triphenyl phosphate)		
Hazard Class:	9	ID Number:	UN3082

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SECTION XIV - TRANSPORT INFORMATION

Subsidiary Risk:	None	Packing Group:	III
Hazard Labels:	Miscellaneous, Marine pollutant	Packing Instructions:	914; LQ Y914
Air Passenger Limit Per Package:	LQ 30kg G	Packing Instruction - Cargo:	914
Air Cargo Limit Per Package:	No limit	Special Provisions Code:	A97

WATER - IMDG

Proper Shipping Name:	Environmentally hazardous substance, liquid, n.o.s. (Contains triaryl phosphates, isopropylated and triphenyl phosphate)		
Hazard Class:	9	ID Number:	UN3082
Packing Group:	III	Subsidiary Risk:	N/A
Medical First Aid Guide Code:	NA		

Additional Information

Emergency Procedures Code: F-A, S-F
Marine Pollutant

SECTION XV - 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.

The manufacture and use of this material is regulated by a Significant New Use Rule (SNUR) under TSCA which can be located at 40CFR 721.2925. These requirements apply to the use of this substance or formulations containing this substance.

State Regulations:

Triphenyl phosphate:
Massachusetts Substance List
New Jersey Right To Know Hazardous Substance List (1% reporting limit)
Pennsylvania Hazardous Substance List (1% reporting limit)

International Regulations:

This material (or each component) is listed on the following inventories:
EU - ELINCS
Canada - NDSL
Korea - ECL
China - List I

Canadian WHMIS Hazard Class and Division = D.2.a, D.2.b

Triphenyl phosphate: Canadian Disclosure List (1%)

SARA Hazards:

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

Additional Information

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

SECTION XVI - OTHER INFORMATION

NFPA Codes:

Health:	NR	Flammability:	NR
Reactivity:	NR	Other:	NR

HMIS Codes:

Health:	2*	Flammability:	0
Reactivity:	0	Protection:	X

Label Statements: Not available

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SECTION XVI - OTHER INFORMATION

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.