MONSANTO CORPORATE FIRE GROUP

FIRE RETARDANT CHEMICALS AND PRODUCTS



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THE FIRE SAFETY ISSUE

In efforts to reduce losses of life and property, various units of government are strengthening fire codes and issuing new, more stringent regulations on the fire-safe aspects of the materials which make up our everyday surroundings. This emphasis on fire regulations is regarded by Monsanto as a major national influence affecting consumers and suppliers alike. Monsanto believes there is a need in many human contact situations for more fire-resistant materials, and also a need to maintain a realistic balance between benefits derived and costs. To this end, Monsanto has formed the Corporate Fire Group to coordinate the many activities within the company concerned with fire safety and to make certain that Monsanto's considerable store of expertise in this area is applied to fire problems where the needs are greatest.

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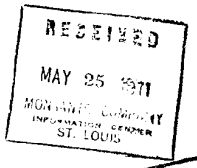
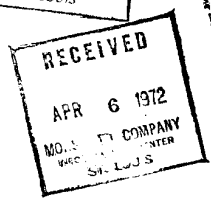
FIRE RETARDANT CHEMICALS AND PRODUCTS





Monsanto

Monsanto Company
Corporate Fire Group
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INTRODUCTION

Increasingly, businesses, government groups, research organizations and individuals are soliciting information on fire retardant chemicals and products. Needs for such information result largely from actual or pending government regulations at the local, state or federal level requiring less flammable items of commerce to protect the public from undue risks due to fire. Monsanto is pleased to provide in this brochure a listing of many chemicals and products potentially useful in helping our customers cope with problems related to fire safety.

Monsanto's broad expertise in fire safety spans our several divisions and research affiliates. To help coordinate numerous fire safety programs and to provide better response to customer needs, Monsanto has formed the Corporate Fire Group. This group welcomes inquiries from anyone with a fire safety problem. Such inquiries will be answered directly by the Corporate Fire Group, or will be directed to the appropriate Monsanto division or business group for prompt and professional reply.

Please address inquiries to:

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Corporate Fire Group
800 N. Lindbergh Blvd.
St. Louis, Missouri 63166

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MONSANTO FIRE RETARDANT CHEMICALS AND PRODUCTS

Product Designation	Type and Suggested Use
	CHEMICALS
MCC-100/200/300 SYSTEM	Durable fire retardant system potentially useful for cellulosic materials such as cotton or rayon fabrics, knit goods, rayon carpets, wool, wood, non-woven fabrics, and paper.
PHOS-CHEK® MAP PHOS-CHEK® DAP PHOS-CHEK® MAP/DAP MIX FIRE RETARDANT A FIRE RETARDANT C	Ammonium phosphates for fire extinguisher compounds and/or general use as non-durable fire retardants.
PHOS-CHEK® P/30 Ammonium Polyphosphate	FR intumescent coatings, plastics, foams and special applications.
PHOS-CHEK® XA PHOS-CHEK® 259 Flame Retardants	Proprietary formulations, including diammonium phosphate for forest fire control.
ALKYL ACID PHOSPHATES	Special fire retardant uses.
PHOSPHORIC ACID PHOSPHORUS TRICHLORIDE PHOSPHORUS OXYCHLORIDE	Intermediates for a variety of phosphorus based fire retardants.
PHOSGARD® C-22-R Flame Retardant	Organophosphorus polymer for urethane foams, polymethacrylate, phenolics, polyester resins and epoxies.
PHOSGARD® 2XC-20 Flame Retardant	Halogen-containing organic phosphate ester for flexible and rigid urethane foams, cellulosics, polyesters, urethane elastomers, epoxy compounds, acrylics, polyolefins and SBR rubber.

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Product Designation	Type and Suggested Use
TRICRESYL PHOSPHATE	Standard liquid flame retardant plasticizer for polyvinyl chloride, cellulose (excepting acetate) and synthetic rubber.
TRIPHENYL PHOSPHATE	Solid plasticizer for cellulosic compositions and coatings and may be used with a solvating type plasticizer for synthetic rubber and a variety of vinyl resins.
SANTICIZER® 140 Plasticizer	Liquid phosphate plasticizer particularly suitable to impart fire resistance and flexibility to vinyl resins.
SANTICIZER® 141 Plasticizer	Liquid phosphate plasticizer -- general purpose. Imparts fire resistance and low temperature flexibility to a variety of resin formulations.
SANTICIZER® 148 Plasticizer	Liquid phosphate plasticizer, imparts excellent low-temperature flexibility in vinyl and non-vinyl formulations. Also exhibits low-volatility characteristics.
AROCLOR® Plasticizer	Chlorinated terphenyls particularly useful in reducing flameout and punking. Compatible in varying degrees with vinyls, cellulosics, rubbers, polyethylene and epoxies.
MONTAR® Plasticizer	Chlorinated polyphenyls similar to Aroclor. Particularly useful for flame retarding asphalt at low cost.
TETRATHAL® Flame Retardant	Resin intermediate for use in polyesters, polyurethanes, alkyds and epoxies.

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Product Designation	Type and Suggested Use
	POLYMERS
ETHYLENE VINYL CHLORIDE	EVCl - latexes for: Carpet backing Nonwoven fabric binder Saturating of fiber webs Automotive upholstery backing Automotive air filter binder Fiberglass fabric coating Surface coatings Textile finishing
MONSANTO® NYLON M340	Nylon 6/6 for plastic parts requiring SE-0 and SE-1 flame spread.
OPALON® PVC	Polyvinyl chloride resin and compounds for plastic parts and electrical insulation.
VYRAN® PVC	Rigid polyvinyl chloride compounds for siding and building accessories.
	RESINS
RESINOX® Resins	Phenol-formaldehyde for thermal insulation, industrial laminates, automotive filters.
RESIMENE® Resins	Melamine-formaldehyde - cross linkers for baked appliances, automotive, coil coating and general industrial finishes. Filters.
RESLOOM® Resins	Melamine-formaldehyde - cross linkers for adhesive formulating, textile coating and finishing, and specialty paper converting applications.
SKYBOND® Resins	Polyimide-type for high temperature laminates, coatings, adhesives, as well as for non-flammable, non-smoking, heat resistant foams.

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Product Designation	Type and Suggested Use
	FILMS AND EXTRUSIONS
MONSANTO® FR POLYETHYLENE FILM	Covering materials where required by local laws (e.g. aircraft parts, bins of goods), availability: 2-10 mil 10'-40' width 3/4-10 mil - 96" and under.
MONSANTO® PVC CUSTOM EXTRUSION	Polyvinyl chloride substitute for rigid and flexible extruded plastics.

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Product Designation	Type and Suggested Use
	FUNCTIONAL FLUIDS
AROCLOR® Fluid (ASKAREL®)	Capacitor dielectric fluid Transformer fluid
THERMINOL® FR Fluid	Heat transfer fluid
PYDRAUL® Fluid	Hydraulic fluid Compressor lubricant
SANTOSAFE® Fluid	Hydraulic fluid
TURBINOL® Fluid	Turbine lubricant
SKYDROL® Fluid	Hydraulic fluid

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Product Designation	Type and Suggested Use
	FIBERS
ACRILAN® Acrylic Fiber	8 d.p.f. SEF; 15 d.p.f. B90 brt. luster; 15 d.p.f. S90 semi-dull; 15 d.p.f. M90 mid-luster; 15 d.p.f. B94 brt. -- for use as carpet pile fibers.
	FABRICS
DURETTE® Fabric	High performance material for military pilots, deep sea divers, aerospace applications, race driver uniforms, industrial and fire service safety apparel, hospital bedding and other uses.
	MISCELLANEOUS
CEREX® Spun-bonded nylon 6/6	Carpet underlayment; needle-punched warmth interliner; air filtration media; stitch medium for sleeping bags, quilts and bedspreads.

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