

Industrial Flame Retardants

Organophosphate Flame Retardants (OP-FRs)

Organophosphate compounds (OPs) are high production volume chemicals. They are utilized as flame retardants and plasticizers, antifoaming agents and additives not only in plastics, but in paints, lubricants and hydraulic fluids as well. The chlorinated OP compounds like tris(2-chloroethyl) phosphate and tris(1,3-dichloro-2-propyl) phosphate are flame retardants used in both flexible and rigid polyurethane foam (e.g. furniture foam, thermal insulation), rubber, textile coatings, and home electronics. OPs have been detected in indoor air and house dust, surface, ground, and even drinking water. Ongoing toxicological studies have shown several toxic effects of these compounds, prompting the recognition of potential ecological and human health concerns of neurotoxin and carcinogenic nature.

AccuStandard, Inc. is now providing some of the more widely used OP-FRs as reference standards.

Compound	CAS No.	Conc.	Matrix	Cat. No.
tris(2-Chloropropyl)phosphate	6145-73-9	10 mg	NEAT	FRS-056N
		50 µg/mL	Toluene	FRS-056S
tris(2,3-Dibromopropyl)phosphate	126-72-7	10 mg	NEAT	FRS-057N
		50 µg/mL	Toluene	FRS-057S
tris(2-Chloroethyl)phosphate	115-96-8	10 mg	NEAT	FRS-058N
		50 µg/mL	Toluene	FRS-058S
tris(1,3-Dichloro-2-propyl)phosphate	13674-87-8	10 mg	NEAT	FRS-059N
		50 µg/mL	Toluene	FRS-059S
tris(1-Chloro-2-propyl)phosphate	13674-84-5	50 µg/mL	Toluene	FRS-060S

Neats at 10 mg
Solutions at 1 mL

Chlorine Containing Industrial Flame Retardants (CFRs)

Compound	CAS No.	Active Ingredient	Conc.	Matrix	Cat. No.
Chlorafin™ 40	63449-39-8	Chlorinated Paraffin	10 mg	NEAT	FRS-002N
			100 µg/mL	Toluene	FRS-002S
Chlorendic anhydride	115-27-5	Chlorendic anhydride	10 mg	NEAT	FRS-001N
			100 µg/mL	Toluene	FRS-001S
bis(2-Chloroethyl)ether	111-44-4	bis(2-Chloroethyl)ether	100 µg/mL	MeOH	APP-9-027
			5 mg/mL	MeOH	AS-E0016
4-Chlorophenyl phenyl ether	7005-72-3	4-Chlorophenyl phenyl ether	100 µg/mL	MeOH	APP-9-047
			5 mg/mL	MeOH	AS-E0038
Chlorowax™ 500C	63449-39-8	Chlorinated Hydrocarbons 59.0%	10 mg	NEAT	FRS-004N
			100 µg/mL	Toluene	FRS-004S
Diable 700X		Chlorinated Hydrocarbons 70.0%	10 mg	NEAT	FRS-005N
			100 µg/mL	Toluene	FRS-005S
Dechlorane Plus	13560-89-9	Dechlorane Plus	10 mg	NEAT	FRS-033N
			100 µg/mL	Toluene	FRS-033S
Hexachlorobutadiene	87-68-3	Hexachlorobutadiene	10 mg	NEAT	FRS-017N
			100 µg/mL	Toluene	FRS-017S
Paroil™ 179-HV	63449-39-8	Chlorinated Paraffin	10 mg	NEAT	FRS-015N
			100 µg/mL	Toluene	FRS-015S
Paroil™ 170-8	63449-39-8	Chlorinated Paraffin	10 mg	NEAT	FRS-016N
			100 µg/mL	Toluene	FRS-016S
Phosgard™ C 22-R	4351-70-6	Halogenated organic phosphate ester	10 mg	NEAT	FRS-019N
			100 µg/mL	Toluene	FRS-019S
Phosgard™ 2XC-20		Halogenated organic phosphate ester	10 mg	NEAT	FRS-020N
			100 µg/mL	Toluene	FRS-020S
Tetrachlorobisphenol A	79-95-8	Tetrachlorobisphenol A	10 mg	NEAT	FRS-022N
			100 µg/mL	Toluene	FRS-022S
Unichlor™ 40-90	63449-39-8	Chlorinated Hydrocarbons 38.5%	10 mg	NEAT	FRS-024N
			100 µg/mL	Toluene	FRS-024S
Unichlor™ 502-50	63449-39-8	Chlorinated Hydrocarbons 52.0%	10 mg	NEAT	FRS-025N
			100 µg/mL	Toluene	FRS-025S
Unichlor™ 70AX	63449-39-8	Chlorinated Hydrocarbons 70.0%	10 mg	NEAT	FRS-026N
			100 µg/mL	Toluene	FRS-026S

Reference Trade Marks

Chlorafin Hercules Powder Company Corp.
Chlorowax Dover Chemical Corp.

Firemaster Great Lakes Chemical Corp.
Paroil Dover Chemical Corp.

Phosgard Solutia Inc.
Unichlor Neville Chemical Co.

Bromkal Chemische Fabrik Kalk



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