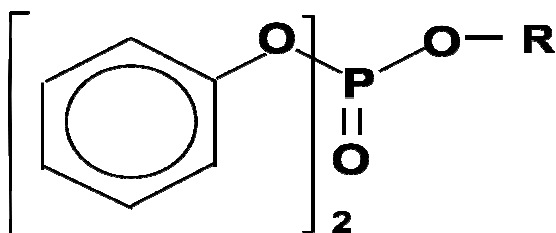


Phosflex 418 Alkyl aryl phosphate ester FR



R = C₁₂-C₁₆ linear alkyl mixture

CAS Numbers:

27460-02-2

142474-86-0

56827-92-0

Overview:

Phosflex 418 is in the class of premium phosphate esters used for flame retarding flexible PVC. Some of the major advantages of using this material are its low volatility, excellent low temperature flexibility, low smoke generation and good flame retardancy. This alkyl aryl phosphate can be formulated to pass the difficult Steiner Tunnel test E-84 and UL equivalent FR protocols. It is one of the first choices in formulations of demanding FR vinyl wire and cable insulation and jacketing compounds. Phosflex 418 can also provide the necessary blend of properties required for other FR flexible vinyl applications such as sheet goods and films.

For health and safety matters, please refer to the msds.

Typical Properties

Physical appearance	clear transparent liquid
Phosphorus content (%)	9.0
Specific Gravity (25 °C)	1.036
Density (@ 20 °C), lb./gal	8.6
Density (@20 °C), kg/m ³	1036
Viscosity @25 °C (MPa)	23
Acidity mg/KOH/g	<0.1
Water Content (wt. %)	<0.1
Color (APHA)	200 max

FR Division

Key Applications:

PVC Applications

Formulations for Flexible Suspension PVC (Geon 103EP) at 50 phr Plasticizer

	1	2	3	4	5
PVC Geon 103EP	100	100	100	100	100
CaCO ₃	50	50	50	50	50
Zinc Borate (Firebrake ZB)		3	6	3	6
ATH (Hydral 710)				20	40
Plasticizers	50	50	50	50	50
ESO (Plastoflex 2307)	5	5	5	5	5
Stabilizers (Ba/Zn mixed metals)	5	5	5	5	5
Totals (parts)	210	213	216	233	256

These five formulations represent basic formula and component variations typically seen for FR-PVC. The resultant flammability and physical properties of these composites are shown in the following tables with comparisons to similar flame retarded vinyl systems.

Phosflex Plasticizers in PVC Suspension Resin (50phr level)

	Additive phr	Tensile Properties			Hardness Shore "A"		LOI 100 Mils	UL-94 1/16" (Avg. Flame time)
		Strength (psi)	E Mod. (psi)	Elong. %	Initial	Creep (15 sec.)		
DIDP (composite set contains 50pt of this plasticizer)								
DIDP	-	1844	858	426	88	85	23	FAIL
ZB	3	2018	907	461	88	84	23.2	FAIL
ZB	6	1824	906	417	90	86	23.2	FAIL
ZB/ATH	3/20	1635	945	359	91	86	23.6	FAIL
ZB/ATH	6/40	1715	1081	374	93	89	25	FAIL
ATO	3	1756	794	432	87	82	25.2	V-0 (0.4)
ATO	6	1847	817	439	86	82	26.5	V-0 (0.8)
ATO/ATH	3/20	1715	909	403	88	84	26	V-0 (-)
ATO/ATH	6/40	1573	999	356	90	86	28.2	V-0 (-)

Phosflex 418 (composite set contains 50pt of this plasticizer)

P-418	-	1827	862	329	88	84	26.5	V-0 (1.0)
ZB	3	1929	873	380	89	86	26.5	V-0 (0.5)
ZB	6	1805	921	325	93	89	26.6	V-0 (0.5)
ZB/ATH	3/20	1711	903	322	93	89	27	V-0 (0.1)
ZB/ATH	6/40	1842	961	335	94	90	28	V-0 (0.4)

For further advice and assistance, contact our representatives in your area:

Head Office

ICL-IP Ltd.

Phone: +972 8 6297 608
Fax: +972 8 6297 846
E-mail: frinfo@icl-ip.com

North America and Mexico

ICL-IP America Inc.

Phone: +1 877 661 4272
Fax: +1 314 983 7610
E-mail: fr.nam@icl-ip.com

South America

ICL Brasil Ltda

Phone: +55 11 2155 4539
Fax: +55 11 2155 4507
E-mail: fr.sam@icl-ip.com

Europe

Main Office

ICL-IP Europe B. V.

Phone: +31 20 800 5800
Fax: +31 20 800 5805
E-mail: fr.europe@icl-ip.com

Italy

PM Chemicals Italy

Phone: +39 02 204 87225
Fax: +39 02 204 9449
E-mail: fr.it@icl-ip.com

Asia Pacific

China

ICL China

Phone: +86 21 5386 3322
Fax: +86 21 5386 3336
E-mail: fr.china@icl-ip.com

Japan

ICL-IP Japan Ltd

Phone: +81 3 3552 1611
Fax: +81 3 3552 1616
E-mail: fr.japan@icl-ip.com

Asia Pacific

ICL Asia Ltd

Phone: +852 28277761
Fax: +852 2824 1502
E-mail: fr.asia@icl-ip.com

Other Parts of the World

ICL-IP Sales Office

Phone: +972 8 6297 633
Fax: +972 8 6297 819
E-mail: fr.row@icl-ip.com

Tecnet 110315