

**Arichem HES-FR** is a non-halogen **HIGH EFFICIENCY** mixed metal salt of aromatic sulfonates providing extremely effective flame retardant (FR) performance in translucent and opaque polycarbonate (PC). The product was developed using Arichem's high purity sulfonation technology.

Representative Chemical Formula:  $M_1 M_2 SO_3 - R_1 - R_2 - SO_2 - R_2 - SO_3$

## Product Application

**Arichem HES-FR** is a high efficiency product used especially for flame retarding PC. The product is specifically designed for most effectiveness in translucent and opaque PC. It is not intended for transparent PC. For Transparent PC please look at Arichem HES2-FR or Arichem KSS-FR.

The active sulfonate content of Arichem HES-FR is much more than that of Potassium Perfluoro-butyl sulfonate (KPBS) and other sulfonate FR products. FR effectiveness has been shown to be related to sulfonate content.

## Product Description and Use or Loading Levels

### *Non Halogen Polycarbonate formulation*

**Arichem HES-FR** is used at fractional loading levels typically less than 0.2% for UL94 V0 flammability performance at 1.6mm thickness. Below is a starting formulation.

Formulation Component	Loading %	
Polycarbonate (6 MFI)	97.85	*Various phenyl methyl siloxanes are referenced in patents and literature. Various trade name products are available: Shin Etsu KR2710, ShinEtsu KR 480, Dow Corning DC 8008, Momentive SR 476, Momentive SF 1550. The use of these products should be discussed with the silicone product supplier.
<b>Arichem HES-FR</b>	<b>0.15</b>	
Siloxane Anti-drip	2.00 *	

### *Polycarbonate formulation with Halogen Anti-drip*

**Arichem HES-FR** is used at fractional loading levels typically less than 0.2% for UL94 V0 flammability performance at 1.6mm thickness. Below is a starting formulation.

Formulation Component	Loading %
Polycarbonate (6 MFI)	99.65
<b>Arichem HES-FR</b>	<b>0.15</b>
PTFE	0.20

Note that this formulation contains PTFE which contains Fluorine which is a halogen. The resultant halogen level of this formulation is 1520ppm which is 100% from the PTFE.

Other formulations should be discussed with Technical Inquiry contact listed below.

More information, samples, and specifications for **Arichem HES-FR** are available upon request.

#### **For Sampling or Technical Inquiries:**

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