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UNIPLEX BAP-370

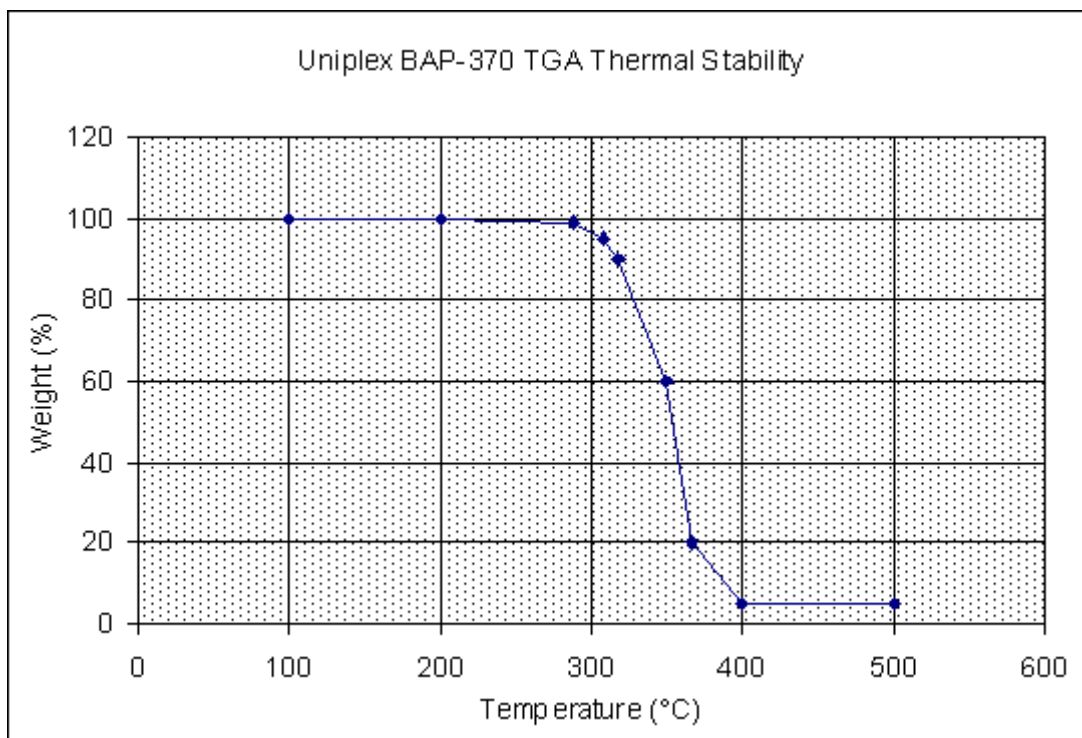
FLAME RETARDANT

Tris (tribromoneopentyl) phosphate

CAS: 19186-97-1

Uniplex BAP-370 is used primarily in Polypropylene molding applications for UL94 V-2 ratings. This rating can be achieved by using 4-6 phr Uniplex BAP-370 with 2-3 phr Antimony Trioxide as a synergist.

Uniplex BAP-370 is non-reactive with the typical hindered amine light stabilizers (HALS) used polypropylene fiber applications. In fiber applications, 3-4 phr Uniplex BAP-370 with 1-2 phr Sb_2O_3 will pass a California 701 burn test.





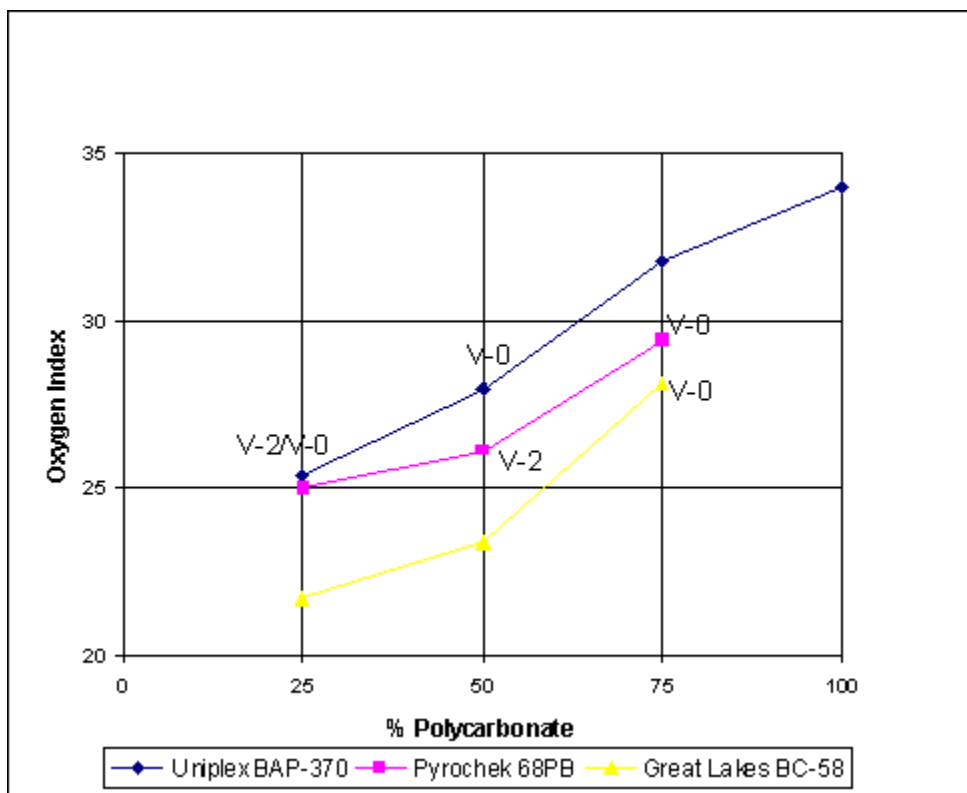
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APPLICATIONS IN POLYESTER

COMPARISON OF FLAME RETARDANTS FR CONCENTRATION FOR UL-94 V-0 (1.6mm) 2/1 POLYCARBONATE/PET ALLOY

Flame Retardant	% Bromine	% Phosphorus	% Minimum
Great Lakes BC-52	51.3	---	12
Triphenyl Phosphate	---	9.5	13
Uniplex BAP-370	70	3	6

FLAME RETARDANCY COMPARISON PC/PBT ALLOY AT 12% FR





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PHOSPHORUS IN MINERAL-FILLED PBT

PBT, Mineral Filled	84	84
Great Lakes BC-52	16	---
Uniplex BAP-370	---	16
Oxygen Index	29.1	35.0
UL-94 Rating (1/16")	Burns	V-0

FLAME RETARDANCY IN GLASS-FILLED PET

PET, 30% Glass	80	80
Uniplex BAP-370	15	20
Sodium Antimonate Teflon 6C	5	---
Teflon 6C	0.5	0.5
Oxygen Index	29.4	36.0
UL-94 Rating (1/16")	V-2	V-0



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APPLICATIONS IN POLYVINYL CHLORIDE (PVC) SEMI-RIGID PVC FORMULATION

Component	Parts
PVC Resin	100
Lead Stabilizer	3
Epoxidized Soya Oil	3
Alumina Trihydrate	5
Antimony Trioxide	3
Diisodecyl Phthalate	17
Diethyl Azelate	17
Uniplex BAP-370	6

PROPERTIES

Oxygen Index	32.0
Shore A Hardness	19
Shore D Hardness	46
Tensile Strength, psi Unaged Aged (7 days/100° C) % Retention	2950 3000 102
Elongation, % Unaged Aged (7 days/100° C) % Retention	230 210 91
Low Temperature Flex, ° C	-16



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HIGH TEMPERATURE WIRE AND CABLE APPLICATION FORMULATION

Component	phr
PVC Resin (Geon 30 ¹)	100
Lead Stabilizer	5
Uniplex FRP-45	40
Uniplex 546-A (TOTM)	34.3
Uniplex BAP-370	Varied
Antimony Trioxide	15

PHYSICAL PROPERTIES

UL 1581-105° C RATING	No Uniplex BAP-370	2 phr Uniplex BAP-370
Tensile Modulus at 100% Strain (psi)	1760	1754
Tensile Strength at Break	2050	2064
Elongation (%)	278	280
Shore A Hardness	88	89

FLAMMABILITY TESTING

Oxygen Index	33	38.9
NBS Smoke Values (ASTM E662)		
Smoldering (D _{MC})	180	140
Flaming (D _{MC})	440	360
Weight Loss 24 hours/90° C	0.2	0.2



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APPLICATIONS IN THERMOPLASTIC RESINS

FORMULATION

Component	phr
Poly(2,6-Dimethyl-1,4-phenylene ether)	30
Polythiophenylene ¹	70
Hydrogenated Styrene-butadiene-Styrene block copolymer ²	10
Uniplex BAP-370	6
Antimony Trioxide	2

¹ Ryton M-2588

² Kraton G-1651

Property	Result
Flexural Modulus	2500 MPa
IZOD Impact Strength	101 MPa
Heat Distortion Temperature	150° C
UL 94 Rating	V-0



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TOXICOLOGICAL PROPERTIES

Skin Absorption	LD ₅₀ > 5000 mg/kg Rat
Inhalation	LC ₅₀ > 1.81 mg/L Rat, 4 hr, max conc.
Ingestion	LD ₅₀ > 5000 mg/kg Rat
Skin Sensitization	Negative in Buehler Assay
Gene Mutation	Ames Test - Negative
Sub-Chronic Toxicity	No toxic effects and pathology after dietary administration of up to 20,000 ppm in rats for 28 days

ECOLOGICAL PROPERTIES

Environmental Effects	
Rainbow Trout	96 hr LC ₅₀ > 100 ppm
Daphnia	48 hr EC ₅₀ > 100 ppm
Algae	72 hr EC ₅₀ > 100 ppm

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