



UNIPLEX M8M
Melamine Molybdate
CAS RN 65235-34-9

Description: A fire and smoke suppressant additive for flexible and rigid PVC compounds. This product may be also useful in a number of different polyolefin and polyamide applications as a synergist with melamine-based non-halogen flame retardants.

Applications:

- Rigid and Flexible PVC compounds
- Flexible halogenated alloys (e.g. PVC/PVDF)
- Non-halogen Polyolefinic compounds
- Non-halogen glass-filled Nylon compounds

Typical Properties:

Molybdenum Content (%)	45 min.
Thermal Stability (5% Loss)	>300°C

Solubility (g/100g Solvent at 25°C):

Water	Insoluble
Acetone	Insoluble
Isopropanol	Insoluble
Xylene	Insoluble
Tetrahydrofuran	Insoluble

General Specifications:

Appearance	Off-white Powder
Particle Size, D ₉₇ , Laser Diffraction	5 microns max.
pH, 5 % in Water	5 - 8
Loss on Drying (2 hr, 135°C)	0.5 max.

Health & Safety: Refer to Material Safety Data Sheet (MSDS).

Application Data:

This product is useful in both rigid and flexible formulations of halogenated vinyl resins as a replacement for Ammonium octamolybdate as a smoke suppressant. Increased oxygen indices are also found indicating improved flame resistance.

Uniplex M8M was compounded into rigid PVC at 200°C with Geon 30 PVC, 2 phr Microthene 510 Lubricant, 2 phr Tin Thioglycolate Stabilizer and 2 phr Uniplex M8M. The compound was compression molded and subjected to various tests with the results tabulated in Table 1.

TABLE 1 RIGID PVC COMPOUNDS

Example	Loading (phr) Molybdenum compound	Thermal Stability (5% Loss TGA)	Compound Thermal Stability (min)	Oxygen Index	%Smoke Reduction (Dmc in ASTM E-662)
Control	None	---	>120	45	----
Uniplex M8M	2	380°C	>120	49	87

Flexible PVC(Geon 30) compounds were prepared by dry blending additives with Geon 30 PVC and then compounding in a two roll mill at 160°C. The compounds were compression molded and tested. The results are tabulated in Table 2. The general purpose formula used was:

MATERIAL	LOADING (phr)
Geon 30 PVC	100
Uniplex 546-A	34
Uniplex FRP-45	40
Molybdate complex	2.5
Antimony Trioxide	2
Lead Stabilizer (Dythal XL)	7

TABLE 2 FLEXIBLE PVC COMPOUNDS

Example	Loading (phr) Molybdenum compound	Thermal Stability (5% Loss TGA)	Compound Thermal Stability (min)	Oxygen Index	%Smoke Reduction (Dmc in ASTM E-662)
Control	None	---	>120	34	----
AOM	5	290°C	>120	39	30
Uniplex M8M	5	380°C	>120	41	35

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