M C A TECHNOLOGIES GmbH (Switzerland)

MCA® PPM Triazine HF

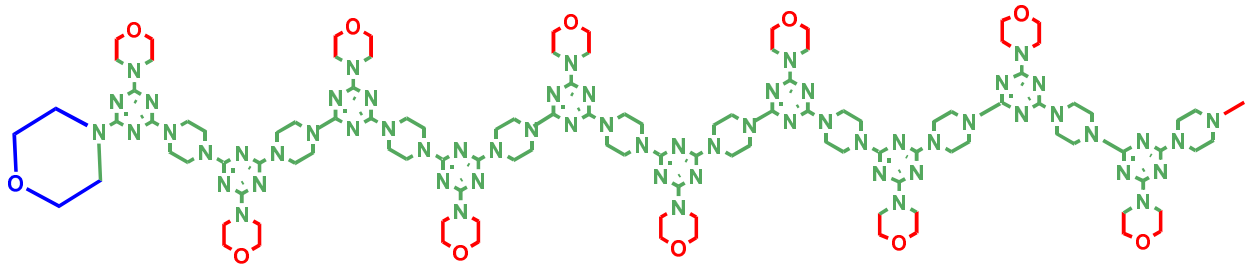
Product Description:

Proprietary[1)] polymeric secondary, halogen-free flame retardant as nitrogen synergist for fire retardation by intumescence; derived from phosphorus nitrogen synergism. In the event of fire the plastic material containing such a fire retardant system foams, cross-links and forms a solid char at the surface acting as a fire shield. The protective layer also imparts a heat-insulation effect, reduces oxygen permeability and prevents dripping of molten polymer, if and wherever it can occur. Such systems are also characterized by low smoke density, and low toxic fumes.

Inert large molecular weight PPM triazines are particularly recommended where small molecular weight state-of-the-art nitrogen synergists fail either in processing or in performance such as due to sublimation, liberation of toxic ammonia by self-condensation, mould deposits, and plate-out from or interaction with the polymer itself.

Ref.1: European Patent Application Nr. EP 09075082.9-2115/2130854;US and other Patents also applied for

Chemical Formula:



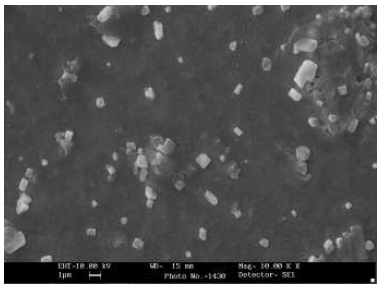
Molecular formula: $[C_{11}H_{16}N_6O]n.C_4H_9NO$

Molecular weight: Approx. 2755

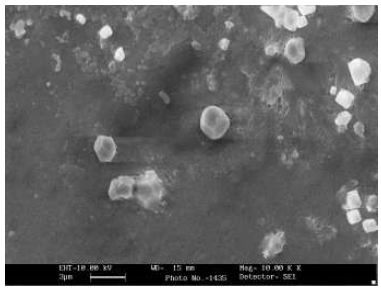
CAS Number: 93058-67-4/1078142-02-5

Chemical Name: Poly-[2,4-(piperazine-1,4-yl)-6-(morpholine-4-yl)-1,3,5-triazine]/Piperazin; Polymer with morpholine-2,4,6-trichloro-1,3,5-triazine reaction product

Scanning Electron Microscope Pictures (x10,000):



Individual particle size:
< 1µm



Individual particle shape:
Dimond shape

Physical Properties:

Supply form:	Free-flowing, off-white crystalline powder
Melting point:	Infusible (> 290°C)
Specific gravity (25°C):	1.01g/cm^3
Cl content:	< 0.1% (w/w)
Water content:	< 0.5% (w/w)
Water solubility:	Insoluble
Individual particle size:	< 1µm
Aggregated particles (average):	12µm
TGA:	< 2% weight-loss up to 300°C

The technical data are meant to describe the product and are not subject to regular monitoring.
Please consult our standard delivery specification.

Chemical Properties:

Chemically inert and blendable with almost all additives, and particularly the HALS light stabilizers

Recommended Applications:

MCA® PPM Triazine HF is suited for PP, PE, PP copolymers, PP blends for injection moulding and extrusion applications.
Formulation: A total loading of 20-25% of a blend consisting of 75% ammonium polyphosphate and 25% MCA® PPM Triazine HF is usually sufficient to achieve LOI > 30% & UL 94 V0 (in addition to realizing other benefits such as low smoke density and less toxic fumes) in PP at 1.6mm.

The blend of 75% ammonium polyphosphate and 25% MCA® PPM Triazine HF can also be used in polyurethane foams. It is recommended to make and use a dispersion of the blend either in polyol or isocyaanate for the application.To prevent the solids from settling, the blend suspension should be stirred or circulated by pump. The following classifications can be achieved:

PU rigid foam
(density > 30 kg/m3) DIN 4102-B 2

PU rigid integral skin foam
(density > 200 kg/m3) DIN 4102-B 2 / UL 94-V0
PU/polyester flexible foam
(density > 30 kg/m3) FMVSS 302-SE / UL 94-HF 1

Casting resins based on epoxy resins or unsaturated polyester resins also achieve the classification UL 94-V0 with the blend of 75% ammonium polyphosphate and 25% MCA® PPM Triazine HF.

Safety and Handling:

For regulatory details such as the classification and labelling as dangerous substances or goods please refer to the corresponding Material Safety Data Sheet.

Transportand Storage:

ADR:	no restrictions.
ADNR:	no restrictions
RID:	no restrictions
IATA:	no restrictions
IMDG:	no restrictions

Packaging:

MCA® PPM Triazine HF is delivered in 25 kg paper bags.