

A: Product identification and description

Preparation of highly stabilised and microencapsulated red-phosphorus (50%) and polyamide 6 (PA 6).

Red-phosphorus CAS: 7723-14-0; EINECS: 2317687

PA 6 CAS: 25038-54-4;

Masteret 20450B1 is a halogen free flame retardant additive based on red-phosphorus particularly suitable for polyamide articles. Is a free-flowing and dust free masterbatch in pellets physical form which makes it very easy to handle, accurately to dose and safely to process allowing high consistency in the quality of the final article.

B: Physical properties

Appearance:	Solid pellets
Colour:	Dark red
Odor:	Light
Density (23°C):	1,3-1,5 (g/ cc)
Bulk density	700-800 (kg/m ³)
IV :	2,7 (referred to PA 6)
Solubility:	Practically insoluble in water and in common organic solvents PA 6 is soluble in : Sulphuric acid, m-cresol, o-chlorophenol

C: Toxicology

Oral toxicity LD₅₀ (rat): > 2000 mg/kg (referred to both components)

Maximum allowable workplace concentration: not stipulated

Toxicological studies on aquatic organisms (zebra fish, algae-scenedemus subspicatus and daphnia magna) performed under GLP compliance have revealed that the LD₅₀/EC₅₀ limits of Masteret are always higher than 100mg/L, and as consequence Masteret is NOT toxic to aquatic organisms and does not need to be labeled. Data are available on Request.

D: Transport

Not regulated for the transportation

E: Applications

Masteret 20450B1 is the masterbatch especially developed for halogen free flame proofing polymer articles based on polyamides but it can be used as a blend component in other polymers like polyesters (PBT, PET, PC) and polypropylene Homo- and copolymers). The polymer carrier has been selected for achieving the homogeneous dispersion of all components in host PA polymers during ordinary compounding operations carried out on twin screw extruders.

Masteret 20450B1 is the cost effective solution for flame proofing polyamide articles, also glass fibers reinforced, by preserving at same time, the original electrical and mechanical properties of the polymer.

The recommended concentration level of Masteret 20450B1 depends on PA grade, glass fiber content and the required standards but, in general, it should range from 4% to 14% based on the weight of the polymer. More in depth: in PA 66 glass fiber reinforced (25-30%), an addition level ranging from 10% to 12 % of Masteret 20450B1 is sufficient for meeting the most demanding applications for electrical components (i.e. V0 at 0,8 mm in thickness according to UL 94, 960°C in GWF1, CTI > 500 V when used with selected synergists), while in partially aromatic polyamides same results are normally achieved with only 4-6% of Masteret 20450B1

F: Processing

Masteret 20450B1 is endowed with high thermal stability therefore it is particularly suitable for all polyamide grades (aromatic and aliphatic, homopolymer and copolymer) also glass fibers reinforced.

Masteret 20450B1 is suitable both for extrusion and injection moulding applications carried out up to 310°C in processing temperature without degrading or releasing die building up or carbonaceous residues in hot runners, however before compounding the preparation, the following items have to be taken into consideration:

- to incorporate Masteret 20450B1 in a pre-dried virgin polyamide (moisture content should be < 0,1%);
- to run the process on twin screw extruders equipped with co-rotating screws;
- to run the process as gently as possible: mixers or extruders operating under high shear stresses might induce the development of volatile moieties (hydrogen phosphite);
- to operate in a well ventilated working place equipped with local exhaust

For further detailed processing information our Customer Service will gladly assist you.

G: Packaging

The preparation is available in 25 Kg multilayer (PE/Al/paper) sealed bags put on pallets

H: Storage and handling

The preparation is stable if maintained in the original sealed bags and under ordinary storage conditions. Normal precautions to a good industrial hygiene and safe working place are, generally, sufficient in handling the preparation, however all operators are kindly requested to handle, use and dispose all wastes of the preparation in accordance with the information reported on MSDS.

The information provided is based on our present knowledge and given as guidance for product use. The loading reported should be only regarded as guidance, however experimental check is needed on the polymer used and the flame retardancy class desired. The data reported do not constitute a guarantee. Quality of product is guaranteed under Italmatch Chemicals General Conditions of Sale. Existing property rights, if any, must be observed.

MASTERET — Red Phosphorus based Flame Retardants