

Campine flame retardant masterbatches

Campine is a leading producer of flame retardant masterbatches. During this operation we develop and produce complete flame retardant systems and transform dry powders into granulates.

Campine has extensive knowledge on how to integrate high levels of FR additives into thermoplastics. In addition to our existing product portfolio, we also offer the possibility for custom compounding.

We offer two types of flame retardant (FR) masterbatches (MB):

- Monobatches: these MBs contain 1 active FR substance in a polymer matrix
- FR product solutions: these are MBs containing a combination of FR substances in a polymer matrix.

1. Monobatches

Compared to powder, the use of MB's granulates offer advantages at different levels in the production process. First of all, MBs are **dust free, contributing to the health and safety** of the operators at the production lines. In addition, **less cleaning time, less product-loss** and a **better dispersion**, will create for our customers the opportunity for cost savings and superior product-quality.

Campine offers monobatches based on antimony-trioxide (ATO) and Melamine Cyanurate (Mecy). Below is an overview of the standard products, indicating the type of polymer and the concentration of the active substance.

Monobatches based on other active ingredients (e.g. MPP or ATH or ...) or based on different types of polymer as a carrier, can be developed upon customer needs.

- ATO monobatches

| Productname | % Active share | Carrier | Physical form |
|---------------------|----------------|---------|---------------|
| CAMPINE EMA 1605317 | 80% | EMA | granules |
| CAMPINE EVA 262215 | 90% | EVA | granules |
| CAMPINE PA 261738 | 80% | PA6 | granules |
| CAMPINE PBT 261530 | 80% | PBT | granules |
| CAMPINE PE 260935 | 90% | PE | granules |
| CAMPINE PP 262316 | 80% | PP | granules |
| CAMPINE PVC 1706518 | 78% | PVC | microgranules |

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- Mecy monobatches

| Productname | % Active share | Carrier | Physical form |
|------------------|----------------|---------|---------------|
| MASTERTEK 374157 | 50% | PA6 | granules |
| MASTERTEK 374540 | 50% | PBT | granules |

2. FR product solutions

These products are often application- and customer-specific and developed to reach a certain FR norm. Campine has extensive expertise in flame retardants and extrusion. The customer has extensive knowledge on his production-process and on the final application. It is important to realize that only a close co-operation between all parties will lead to a successful development.

In many cases an existing FR MB can be used as a reference or a starting point but will need modification to fulfill all customer requirements. The below lists are only a snapshot of our complete product portfolio and should serve as a basis for discussion or for a first trial.

Conventional flame retardant masterbatches are based on halogenated substances. These are effective in low doses and have a good price / performance ratio. During the last years, society has been pushing for a substantial reduction in the use of halogens. Campine offers a range of halogen containing, low halogen and halogen-free products for different applications.

Campine works with a minimum order quantity (MOQ) of 5 tons. For standard products, there is no MOQ.

Polyolefines Film, Foam, Wire and Cable

| Product Name | FR solution | Description | FR compliant with | MOQ |
|------------------|---------------|--|-------------------|--------|
| MASTERTEK 350531 | Bromine based | LDPE carrier, typical dosing level 3 - 15% | EN 13501 E/C | 5 tons |
| MASTERTEK 368315 | Bromine based | LDPE carrier, typical dosing level 3 - 8% | EN 13501 E/D | 5 tons |
| GR5681 | Halogen free | LDPE carrier, typical dosing level 5 - 8% | EN 13501 E/D | 5 tons |

PP/PE Pipes and Sheets

| Product Name | FR solution | Description | FR compliant with | MOQ |
|-------------------|-------------------|--|-----------------------|--------|
| MASTERTEK 4205459 | Bromine based | LDPE carrier, typical dosing level 3 - 8% | EN61386 | NA |
| MASTERTEK 373322 | Bromine based | PP carrier, typical dosing level 3 - 8% | EN61386 | NA |
| MASTERTEK 5105423 | Bromine based | LDPE carrier, typical dosing level 3 - 8% | EN61386 | NA |
| MASTERTEK 381515 | Ultra low halogen | PP carrier, typical dosing level 3 - 6% | EN61386 | NA |
| MASTERTEK gr6047 | Halogen Free | PP carrier, typical dosing level 12 to 40% | EN61386, EN 13501 E/D | 5 tons |
| MASTERTEK 9105619 | Halogen Free | HDPE carrier, typical dosing level 30 to 40% | EN 13501 E/D | NA |

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Bitumen, Hotmelts, Rubber

| Product Name | FR solution | Description | FR compliant with | MOQ |
|-------------------|---------------|--|-------------------|--------|
| MASTERTEK 4205398 | Bromine based | hot melts / rubber applications, typ. dosing level 3 - 15% | DIN 4102 B2 | 5 tons |
| MASTERTEK 4205459 | Bromine based | SBS bitumen, typical dosing level 3 - 15% | ENV1187 | NA |
| MASTERTEK 4206735 | Bromine based | APP bitumen, typical dosing level 3 - 15% | ENV1187 | NA |

XPS / X-EPS Foam

| Product Name | FR solution | Description | FR compliant with | MOQ |
|-------------------|---------------------|--------------------------------------|-------------------|--------|
| MASTERTEK 7306854 | Polymeric FR | XPS, typical dosing level 1,5 - 5% | EN 13501 E/D | NA |
| MASTERTEK 7405934 | Monomeric FR | XPS, typical dosing level 1,5 - 5% | EN 13501 E/D | NA |
| MASTERTEK 7506793 | Mix Poly FR/Mono FR | XPS, typical dosing level 1,5 - 5% | EN 13501 E/D | NA |
| MASTERTEK 7307076 | Polymeric FR | X-EPS, typical dosing level 1,5 - 5% | EN 13501 E/D | 5 tons |
| MASTERTEK 9906736 | *Stabiliser MB | Stabiliser MB | | NA |

PP / HIPS Injection moulding

| Product Name | FR solution | Description | FR compliant with | MOQ |
|-------------------|-------------------|---|-------------------|--------|
| MASTERTEK 5105423 | Bromine based | LDPE carrier, typical dosing level 10 - 18% | UL94 V2 | NA |
| MASTERTEK 381515 | Ultra low halogen | PP carrier, typical dosing level 3 - 8% | UL94 V2 | NA |
| MASTERTEK gr6047 | Halogen Free | PP carrier, typical dosing level 30 to 40% | UL94 V0 | 5 tons |
| MASTERTEK 370740 | Bromine based | HIPS carrier, typical dosing 8 - 12% | GWFI 850°C | NA |

Campine also offers the following FR compounds.

FR TPE / TPV compounds

| Product Name | FR solution | Description | FR compliant with | MOQ |
|----------------------|---------------|---|-------------------|--------|
| MASTERTEK 4206466 | Bromine based | Designed for TPV flexible tubes - Black | V0 - 1,6mm | 5 tons |
| MASTERTEK 3380-N02-N | Bromine based | Designed for TPV flexible tubes | V0 - 1,6mm | NA |
| MASTERTEK 4204998 | Bromine based | Designed for TPV membranes | DIN 4102 B1 / | 5 tons |
| MASTERTEK 4206615 | Bromine based | Designed for TPE window profiles | V0 - 1,6mm | 5 tons |

3. Contact persons at Campine

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