EcoPiren
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Basic formulations for PA-6 and PP

Applying EcoPiren® for nylons enables to substitute up to 50% of brominated FRs and their synergists. It leads to decrease of overall smoke production and smoke toxicity; formation of stronger char which prevents flame propagation, increase of CIT. The surface treatment with aminosilane grants EcoPiren® 3,5NA outstanding segmental and chemical compatibility with the nylon as well as prevents both migration to the surface and ageing resistance decrease.

Use of brominated FRs in high FR rating polyolefins (such as V-0) is rather complicated due to inability of polyolefins to form char. This issue can be solved by addition of mineral fillers or glass fibres. EcoPiren® acts both as a mineral filler and FR, enhancing the fire performance of the main brominated systems and reducing the amount of brominated additive needed. The surface treatment with alkylsilane makes EcoPiren® 3,5NP perfectly compatible with non-polar polyolefin chain, grants homogenous dispersion and prevents migration to the surface.

Comparison of Flame Retardant system composition in PA-6 and PP

PA-6

FR Components	V-2		V-0	
	Brominated	EcoPiren®	Brominated	EcoPiren®
Brominated FR	12	6	18	8
ATO	4	2	6	2
EcoPiren® 3,5NA	–	15	–	15
PTFE	–	–	< 1	–

Polypropilene

FR Components	V-2		V-0	
	Brominated	EcoPiren®	Brominated	EcoPiren®
Brominated FR	6	4	22	17
ATO	2	1	8	5
EcoPiren® 3,5NP	–	10	–	15
Mineral Filler	–	–	14	–
PTFE	–	–	< 1	–