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### Statement for halogen-content of BJB products

relating to standard products of the categories:

Lampholders / switches / terminals / connectors / optics / components for domestic appliances

Often the background of this kind of inquiries is the question for the absence of brominated flame retardants. Therefore, the following statement refers also principally to the contents of bromine.

Plastic materials used, referred to standard products of the following categories:

Products	PC (V-2)	PBT-FR	PET-FR	PA	PPS	LCP	PPA-FR	PMMA
Lampholders	x	x	x		x	x		
Switches	x			x				
Terminals	x			x			x	
Connectors		x		x	x	x		
Optics	x							x
Components for domestic appliances	x	x			x	x		

#### PC (V-2) ⇒ bromine-free

The non-flame-retardant PC with flame class V-2 is free of bromine, but being conditioned by its production, PC contains small quantities of halogen hydrocarbons, which result to content of chlorine of < 0.02% in the granulated material.

Depending on the required limit, the PC (V-2) can be specified as PC with a low content of halogen or as halogen-free PC (in accordance with VDE 0472 Part 815 and IEC 61249-2-21).

#### Flame retardant PBT-FR and PET-FR ⇒ bromine containing

The used PBT and PET materials contain halogenated flame retardants.

Flame retardants are necessary for PBT and PET to achieve an increased fire protection or to meet higher test specifications, e.g. flame class V-2 or V-0 according to UL 94.

Brominated compounds are used as flame retardants, but no polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE), which are restricted according to the EU directive 2011/65/EU (RoHS).

#### PA, PPS, LCP, PPA-FR, PMMA ⇒ bromine-free / halogen-free

The PA (V-2), PPS, LCP and PMMA materials are used without flame retardants and do not contain bromine compounds.

The flame retardant systems of PA (V-0) and PPA-FR are halogen-free and free of red phosphorous.

#### Wires

Wires with PVC, PTFE, PFA or FEP insulation cannot be halogen-free, as the "C" or "F" in the abbreviation stands for chlorine or fluorine. But halogenated flame retardants are not contained and therefore neither any brominated flame retardants.

PE-X and silicone insulations are halogen-free.

Best regards,

BJB GmbH & Co. KG



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