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Halogen content of silicone products

Halogens are defined as chemical elements that belong to group 17 of the periodic table, specifically the elements fluorine, chlorine, bromine, iodine and astatine.

None of the silicone elastomer products stocked by TYM seals contain the elements fluorine, bromine, iodine or astatine

All peroxide cured silicone elastomer products manufactured, including the grade S2726 contain trace amounts of chlorine. This is due to the chemical by-products of the curing agent 2,4 bis-dichlorobenzoyl peroxide.

The amount of chlorine present in the finished silicone elastomer has been measured in two ways:

1. A sample of solid silicone elastomer cured with 2,4 bis-dichlorobenzoyl peroxide was subjected to oxygen bomb combustion and ion chromatography. The chlorine content was found to be 430 mg/kg. This is equivalent to 430 parts per million (ppm).
2. A sample of solid silicone elastomer cured with 2,4 bis-dichlorobenzoyl peroxide was burnt in air for four minutes, with all combustion fumes being collected. Less than 1 mg.m⁻³ of chlorine containing gas was found in the smoke released.

The current definition of “Halogen Free” used by the International Electrochemical Commission (IEC) is defined in standard IEC 61249-2-21.

This states that a product can be called “Halogen Free” if it contains less than:

- 900 ppm chlorine
- 900 ppm bromine
- 1500 ppm total halogens

The results shown above enable us to support the statement that silicone elastomer products stocked by TYM seals are Halogen Free as our products meet the limits of IEC 61249-2-21.