

Ozone resistance of neoprene rubber sheet

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[Neoprene rubber sheet](#) is a polymer of good ozone resistance.

According to the ozone resistance, elastomers can be divided into three categories:

① The elastomer itself has ozone resistance, which has no double bond or less double bonds saturated elastomer. Such as EPDM rubber, chlorosulfonated polyethylene, chlorinated polyethylene rubber and silicone rubber, etc.

② The elastomer which itself has good ozone resistance, and with the help of a formula can be obtained better ozone resistance, such as butyl rubber, neoprene rubber and so on.

③ The elastomer itself has poor ozone resistance, must cooperate with ozone resistance antiager, such as natural rubber, styrene butadiene rubber, butadiene rubber and butyl rubber, etc.

Diene elastomer basically belongs to the third class, and why butyl rubber and neoprene rubber are listed in good ozone resistance of the second class? This is due to the low unsaturation of butyl rubber, similar to the low unsaturation elastomer with good ozone resistance. About neoprene rubber we can make the following instructions: olefins compounds after the double bond parts subjected to ozone, ozone compound generated, the ozonide is unstable, easy to crack, so as to cut the carbon-carbon main chain, namely the so-called "ozone cracking". This reaction can be interpreted as a double bond part with characteristics of nucleophilic carbon atoms react with oxygen atoms with characteristics of electrophilic in the ozone, and formed the ozonide. The nucleophilic properties of carbon atoms depend on the substituent of the molecule is easy to attract electrons or easy to emit electrons. Because if use methyl substitution of hydrogen, methyl tend to emit electrons, the double bond of carbon atoms enhanced nucleophilic properties and speeded up reaction rate with ozone; As halogen which is easy to attract electron group substitution of hydrogen, the double bond carbon atoms of the nucleophilic nature is abate, and ozone reaction rate is slow. Thus, compared to ozone and polyisoprene ratio ozone to polybutadiene reaction is easy, and chloroprene reaction is more difficult. Neoprene rubber and its vulcanized rubber have high stability, is due to the steric hindrance of the polarity of chlorine atoms exist, protecting the double bond, make it difficult for ozone reacting with double bond. Elastomer in the free stress state, the compound generated by the ozone layer is as a protective film, can make the tear not extended to the internal; When subjected to stress, ozone cracks and stress developed in vertical direction, the ozone gradually shooting to the lower level, caused the crack extension.