

Storage and Shelf Life of Flevo Rubber Compounding(FRC) Compounds

General

A rubber compound comprises many ingredients, each with a specific function, such as elastomers, oils, fillers, activators and curing agents. This means that a compound is in fact a reactive mixture, in which reactions normally take place during the production process of our customers in the vulcanization step. However, interactions and reactions between the various ingredients can also occur during storage. As a result, rubber compounds have a limited shelf life. Generally, this varies between 2 weeks and 3 months, depending on the specific composition of the customer's recipe.

Compound-Specific Shelf Life

As FRC produces customer-specific rubber compounds, the shelf life strongly depends on the applied recipe. Both the recipe code and the expiration date are always stated on the FRC label on the packaging.

The compound's rheological behavior is considered stable and guaranteed within the period prior to the expiration date, provided the general storage conditions mentioned below are respected. After the expiration date, interactions and reactions between the compound ingredients may cause changes in rheological behavior that can disturb or negatively affect processing. Eventually, this may render the compound unsuitable for use.

If compounds are stored under unfavorable conditions, their physical and/or chemical characteristics may change even before the expiration date.

Storage Conditions

During storage there are various environmental influences that affect shelf life. The harmful effects of these factors can be minimized by carefully selecting appropriate storage conditions. FRC therefore emphasizes that the stated expiration date is only valid if the following storage conditions are respected.

Temperature:

Since reaction rates increase with temperature, a cool storage environment is required. However, storage at excessively low temperatures may lead to crystallization or freezing of certain compound components, or even to reduced solubility of some materials. Therefore, a storage temperature between +5°C and +25°C is strongly advised. Short-term (hours) summer temperature spikes up to 35°C typically do not harm the compound, but should still be avoided.

Humidity:

The storage area should be dry and properly ventilated. Humid conditions should be avoided, as moisture may influence processing and curing behavior (for example causing porosity). Relative humidity should preferably remain below 65%.

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Cleanliness and Handling:

Outdoor storage should be avoided. FRC compounds should be stored in an area that meets common standards of cleanliness to prevent cross-contamination with foreign materials. Direct contact with foreign materials and with other types of rubber should be avoided. It is recommended to keep the compound in its original packaging (e.g. gitterbox, carton box, etc.) until use.

Light Exposure:

Direct exposure to daylight, sunlight, and strong artificial light may adversely affect compound stability and must therefore be avoided.

Air and Chemical Exposure:

Whenever possible, compounds should be protected from excessive air circulation and should not be stored near electrical equipment capable of generating ozone. In addition, storage in areas that are continuously occupied by fuel-operated machinery (e.g. forklifts or generators) may lead to exposure to elevated NO_x levels that can considerably shorten shelf life.

Stock Rotation:

FRC compounds should not be stored longer than strictly necessary. It is therefore recommended to apply the FIFO (First In – First Out) stock rotation system.

Disclaimer

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