

## Tech info 8

### Storage and transport of forming lubricants under diverse climatic conditions

Forming lubricants are very complex mixtures of carrier media (mineral oil, esters, solvents or water) and a number of additives (admixtures with particular properties) and, unlike media such as gear oil, hydraulic oil, etc., have not been developed for use at considerably different temperatures. They therefore require particular attention during transport and storage.

We can generally divide lubricants into three groups for transport and storage:

- 💧 Products containing water
- 💧 Mineral or ester oil-based products
- 💧 Products containing solvents

The “products containing water” and “mineral or ester oil-based product” groups particularly require our attention during the cold season of the year.

In the case of **products containing water**, one risk is of the water “freezing out”, leading the forming lubricant to lose its homogeneity and forming properties. Heating to room temperature usually fails to restore the homogeneity and, consequently, forming performance of the lubricant, and the forming lubricant can only be disposed of as waste. It is therefore imperative that this product group be stored and transported under frost-free conditions.

**Mineral or ester oil-based products** are not as sensitive, but their viscosity may increase sharply at low temperatures. This may render it impossible to apply specified lubricant volumes, as the delivery systems of the lubricating device or the freedom of movement of lubricating felt rollers is not designed for high viscosities of this nature. The solubility limit of certain additives may also be undershot here at lower temperatures, leading to precipitation of certain substance groups (turbidity) and the loss of certain forming lubricant properties. Heating to room temperature is adequate in some cases to restore the homogeneity of the product. For this reason, these forming lubricants should be stored at room temperature. Where this is not possible, the lubricant must be stored in the production facility long enough prior to use to allow the product to attain room temperature again.

However, **products containing solvents** require our attention during the warm season of the year. In the case of products containing solvents, so-called evaporating stamping and drawing oils, certain components can already pass from the liquid to the gaseous state in the container (barrel, canister, etc.) in the event of excessive heating (e.g. through direct sunlight). As the container needs to be firmly closed at all times to avoid losses of volatile components, swelling of the container can now occur. These components, which are required for rapid evaporation, then escape when the container is opened and are no longer available for use. This may lead to longer evaporation durations when the product is used or greater lubricant residues on the parts being treated. It is therefore necessary in the case of these products to ensure that the containers are not heated too excessively during transport and storage.

## Summary

- All forming lubricants should only be stored under frost-free conditions between +10°C and +35°C
- Protect products containing water against frost during transport
- All forming lubricants should be protected during storage against excessive heating and direct sunlight
- All forming lubricants must reach room temperature prior to use