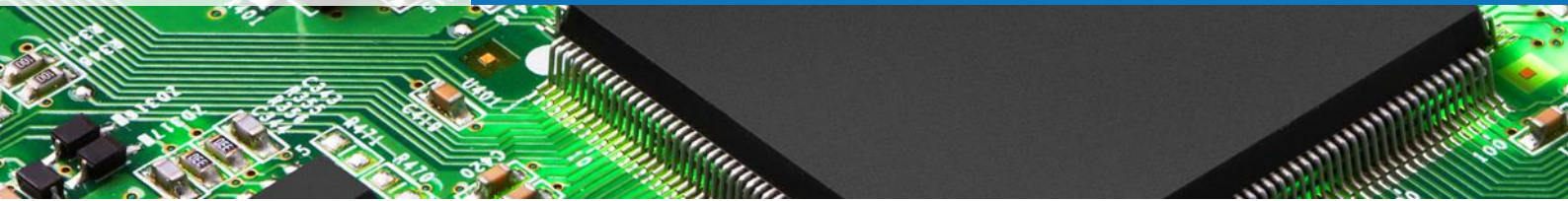




Product Handling Guide Epoxy Molding Compounds



Protection from Heat & Humidity

Epoxy Molding Compounds (EMC) are affected by heat and moisture. That is why we require refrigeration during shipping, handling, and storage.



Heat (above suggested guidelines) will cause the epoxy molding compound to slowly begin to react, reducing the material's spiral flow length and gel time. This may lead to product process variations that may be required to mold successfully.



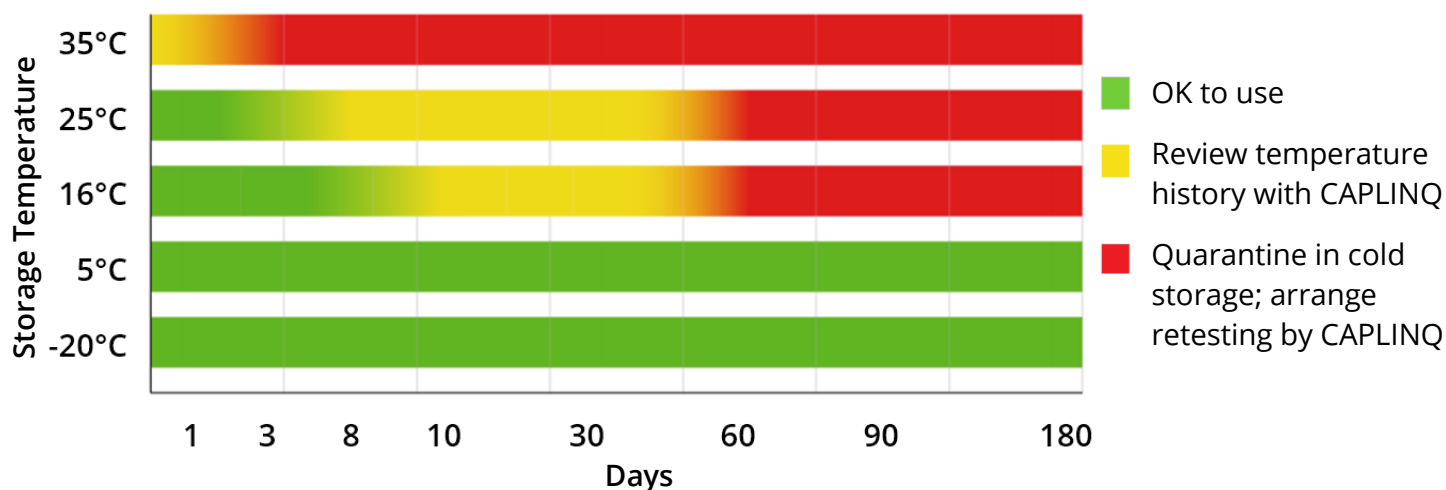
Condensation or high humidity (>50%) may cause the epoxy to cure more slowly, which in turn may reduce the material's viscosity. This may lead to mold defects and could also reduce material properties.

Epoxy Mold Compounds are shipped in plastic bags packed in carton boxes. The plastic bags keep the condensation and humidity from coming into contact with EMC and should only be opened and closed when the epoxy is at room temperature to avoid condensation formation when moving the products from cold storage to warmer temperatures.

Receiving Instructions

- **1. Move goods into cold storage.** When you receive your goods, they should be placed into cold storage as soon as possible. CAPLINQ recommends materials be stored at or below the storage temperatures indicated on the technical data sheets. Lower temperatures are even better to maximize flow retention.

Maximize Flow Retention with Cold Temperature Storage



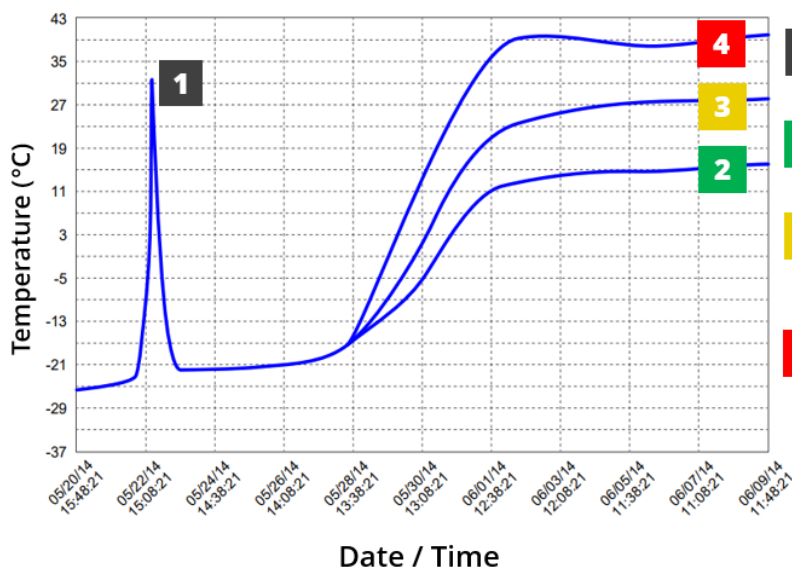
- **2. Get USB temperature data logger readings.** To obtain the data from the product's temperature recorder, follow these instructions:
 - ▶ Remove the USB device from the clear envelope
 - ▶ Press and hold for 5 seconds to stop the device: the STATUS led will flash 5 times to indicate recording has stopped
 - ▶ Tear along the dotted line to expose the USB
 - ▶ Insert the device into your USB port on your computer and follow on screen instructions to run the PDF file
 - ▶ Email the PDF report to planning@caplinq.com

- **3. Confirm cooled supply chain history.** During shipment, temperature data logger recorder may experience brief high-temperature excursions when packaging is opened by inspectors at transit points. Additionally, frozen material will slowly warm to ambient conditions during air shipment. Short-period exposure to heat is normal and it will not damage the product. Long-term exposure to heat could reduce flow retention, which could necessitate changing your molding parameters.
 - ▶ If the temperature curve on the chart **is not over the 16°C / 59°F mark:**
 - ▶ Product is fine to use. No further action necessary.

 - ▶ If the temperature curve is **over the 16°C / 59°F mark:**
 - ▶ Count the total number of days temperature has exceeded 16°C / 59°F
 - ▶ If the number days exposed is more than 6 days, the material and temperature history need to be reviewed before use. Contact quality@caplinq.com before using.

 - ▶ If the temperature curve is **over the 35°C / 95°F mark:**
 - ▶ Count the total number of days temperature has exceeded the 35°C / 95°F
 - ▶ If the number days exposed is more than 2 days, the material and temperature history need to be reviewed before use. Contact quality@caplinq.com before using. We may need to re-test a sample before your use.

Temperature Data Logger Data

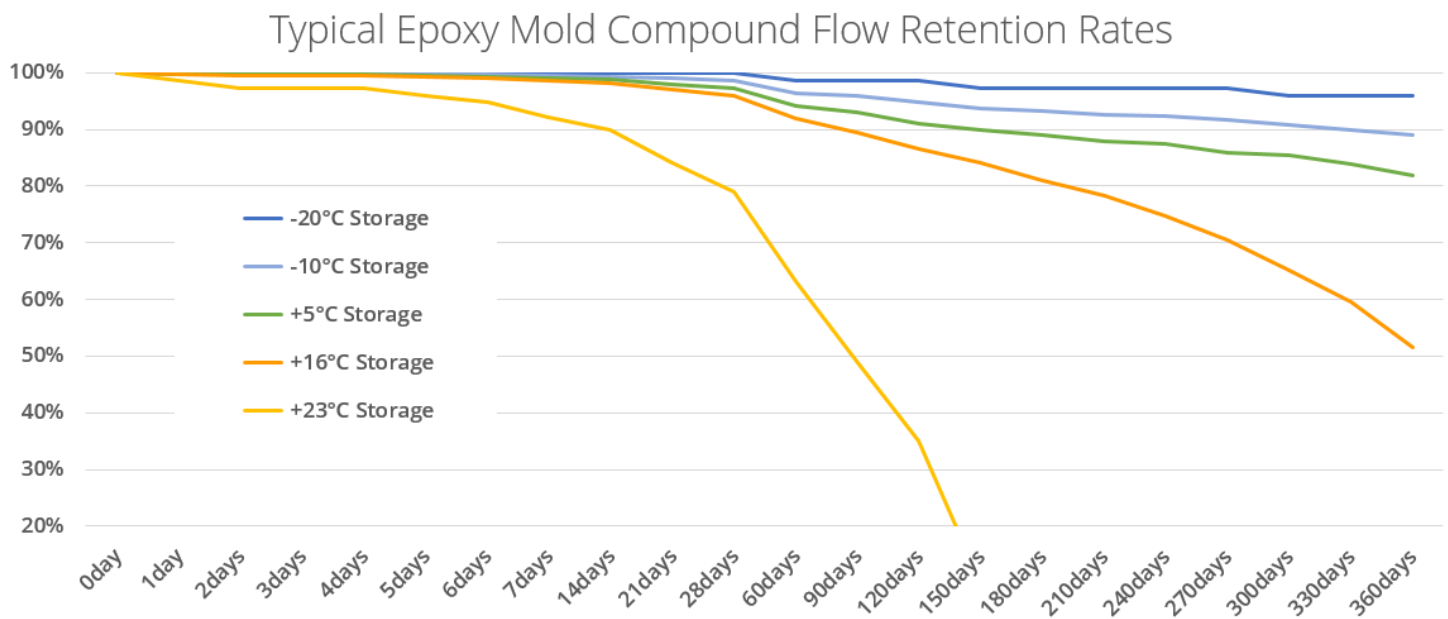


- 1** Ignore any narrow, short-duration temperature excursions - these have no effect on flow retention.
- 2** If the chart looks like this, with temperature under 16°C, product is fine for use.
- 3** If chart confirms several days exposure to temperatures between 16°C and 35°C, please email quality@caplinq.com for flow retention data.
- 4** If chart confirms a week exposure to temperatures above 35°C, email quality@caplinq.com for flow retention data. Material may need to be evaluated before use.

Storage Instructions

- **1. Store Epoxy Molding Compound (EMC) as cool as possible.** Epoxy molding compounds are mixed systems wherein the cross-linking reaction is initiated at the time of manufacturing. This reaction causes the flow retention to drop, meaning it flows less during molding. Once started, the reaction cannot be stopped, only slowed down. This rate of reaction is dependent on two factors: **time** and **temperature**.

Storing epoxy molding compounds at lower temperatures slows down the reaction significantly. Though the rate of reaction is different for every product, the chart below gives a good idea of what happens to mold compound flow retention at various storage temperatures. Though CAPLINQ typically recommends a storage temperature at or below the temperature listed on the technical data sheet, you can see from below chart that lower temperatures have an even more positive on flow retention rates.



Usage Instructions

- **1. Remove Epoxy Molding Compound from cold storage.** Epoxy Molding Compounds must be brought to ambient temperature before use. The time for temperature equilibration depends on the mass of material being prepared for use. A 15kg box of EMC stored at 5°C needs approximately 4 hours to equilibrate. Boxes stored at colder temperatures need longer times. CAPLINQ typically recommends taking EMC from cold storage 8 – 24 hours before use. Use product within 48 hours.
- **2. Do NOT open plastic bag before equilibration.** Condensation may form on the box and the bag of the EMC when brought to temperature to equilibrate. This is normal and poses no problems. If the bag is opened, condensation may form on the pellets, this may cause molding issues. Keep the bag closed until ready for use.
- **3. Do NOT return unused product to cool storage.** Unused product should not be returned to cold storage. Though it is possible to refreeze and re-thaw the EMC, it is very difficult to measure the remaining flow retention and thus, CAPLINQ voids all warranties in these cases. If you do choose to do this, make sure the plastic bags is well sealed prior to returning to cold storage to avoid condensation.