Kafrit NA Ltd.

Technical Note:

GAS FADING

Color Change of Products made with White Catalyst Masterbatches

During long term storage, the surface of finished PEX pipe and tubing manufactured with white catalyst masterbatch may take on a light beige or yellow color. This phenomenon is known as gas fading.

Gas fading appears on PEX tubing during storage where the tubing is exposed to:

- Exhaust from burned fossil fuels, for example forklift propane,
- Gases released from warehoused cardboard packaging, and
- Gases released in the production environment.

Kafrit NA's catalyst masterbatches contain a sophisticated stabilization and protection package, which include phenolic antioxidants, to protect the PEX tubing during its service life. These stabilizers and antioxidants protect the material during processing and protect the tubing from damage caused by UV light, chlorine, and metal ions near brass fittings.

Gas fading is a result of the antioxidants absorbing free radicals from a variety of sources such as engine exhaust. When phenolic antioxidants destroy free radicals, some of the resulting compounds have a beige or amber color. Properties of the PEX pipe are not compromised. Gas fading may be taken as evidence of the effectiveness of the antioxidant protection package in the masterbatch. The beige color compounds are not photo-stable, so exposure to light quickly causes the normal color of the pipe to re-appear.

Gas fading is dependent on the concentration of the phenolic antioxidants in the catalyst masterbatch. Kafrit NA catalyst masterbatches have a high concentration of phenolic antioxidant and because of the white pigment in the white catalyst, color change caused by gas fading is more obvious than for other colors.

Recommendations:

Finished white PEX pipe & tubing should be stored in areas with minimal exposure to the gases that result in gas fading. All practical steps should be taken to minimize the exposure of PEX tubing to conditions which could cause gas fading. The antioxidant package ensures the final properties and long-term performance of the PEX tubing. There is a risk of this cosmetic problem with the use of the antioxidants, but the performance of the tubing is not at all compromised.

Kafrit NA Ltd, a member of the Kafrit Group, is certified to ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007.

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