APPLICATIONS

- Thermoset Coatings for Containers
- DTM Enamels and Zinc-Rich Coatings
- Single-Pack Epoxy/DICY Coatings
- Plastics Modifications
- Adhesives & Sealants

TYPICAL PROPERTIES

<table>
<thead>
<tr>
<th></th>
<th>PKHB</th>
<th>PKHC</th>
<th>PKHH</th>
<th>PKHJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Solids</td>
<td>99 min.</td>
<td>99 min.</td>
<td>99 min.</td>
<td>99 min.</td>
</tr>
<tr>
<td>Viscosity, cP</td>
<td>180-280</td>
<td>410-524</td>
<td>525-715</td>
<td>600-775</td>
</tr>
<tr>
<td>(Brookfield@25°C 20% in cyclohexanone)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color (APHA)</td>
<td>200 max.</td>
<td>200 max.</td>
<td>200 max.</td>
<td>200 max.</td>
</tr>
<tr>
<td>(20% in cyclohexanone)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mw/Mn (av.)</td>
<td>32,000/10,000</td>
<td>43,000/11,000</td>
<td>52,000/13,000</td>
<td>57,000/16,000</td>
</tr>
</tbody>
</table>

InChemRez Phenoxy Resins PKHB, PKHC, PKHH, PKHJ

InChemRez Phenoxy resins are solid grade medium to high molecular weight thermoplastic polymers of epichlorohydrin and Bisphenol A. These polymers have terminal hydroxyl groups as well as repeating hydroxyls along the backbone. In addition, Phenoxy resins comply with 21CFR175.300 for direct and indirect food contact coatings applications.

InChemRez Phenoxy Resins PKHB, PKHC, PKHH, PKHJ

Safety and Handling

InChemRez Phenoxy resins are provided in pellet form at 55 pound (25 kg) net in lined bags. The resin is indefinitely stable in unopened containers when stored at normal temperatures.

Phenoxy resins may absorb about 1% by weight water if exposed for long periods of time to the atmosphere. The pellets can be dried at 90 - 100°C if required. Phenoxy resins can be solubilized in many polar, aprotic solvents for ease of formulation. Typical solvents include MEK, glycol ethers, glycol ether esters, NMP, etc.

Consult the product MSDS for additional information on properties, hazards, and handling.

InChem Corp • 800 Cel-River Road • Rock Hill, South Carolina 29730 • Tel: (803) 329-8000 • Fax: (803) 328-3827

IMPORTANT: This information is not to be taken as a warranty or representation for which we assume legal responsibility nor as permission or recommendation to practice any patented invention without a license. It is offered solely for your consideration, investigation, and verification. Since your specific use application and conditions of use are beyond InChem Corp’s control, you must determine the suitability of the products and the suggestions mentioned herein for your specific application.
Phenoxy resins (polyhydroxyethers) are tough, ductile polymers having excellent thermal stability, adhesive and cohesive strength, and excellent vapor barrier properties. Phenoxy resins also react with crosslinkers like isocyanates, and phenolic and melamine resins.

The solid grade Phenoxy resins vary in glass transition temperature from a low of 84°C for grade PKHB to about 97°C for PKHJ. The differences of Tg and molecular weight amongst these resins are reflected in the range of viscosities attainable at equivalent solids for solvent-borne formulations. The following list shows some comparative viscosity data for select resins.

### COMPARATIVE VISCOSITIES

*20% NV in cyclohexanone:*
- PKHH: 525 to 715 cP
- PKHC: 410 to 524 cP
- PKHB: 180 to 280 cP

*30% NV in PM acetate:*
- PKHC: 5000 to 15000 cP
- PKHB: 1000 to 2000 cP

*40% NV in MEK:*
- PKHH: 4500 to 7000 cP
- PKHB: 800 to 1200 cP

Comparative melt rheological data on the PKHB and PKHH grades are shown below. These properties were determined by capillary rheometry at 200°C. Both resins exhibit non-Newtonian flow behavior over the shear rate test range. At a shear rate of 1000 sec⁻¹ the viscosity of PKHB is 75% lower then PKHH. The melt flow index for PKHB is approximately 65 gm/10 min. at 200°C (2.16 kg load); PKHH is about 4.4 gm/10 minutes (at 200°C).

Phenoxy resins can be used to modify many resin systems including polyurethanes, polyesters, polyamides, epoxies, and many thermoplastics including PET, TPU’s, polycarbonate, and nylon.

Phenoxy resins are also thermosetting with isocyanates, melamine, and phenolic crosslinkers. Empirically derived levels of such crosslinkers are best determined for the end properties desired, however 10 to 20 phr is usually best.

Coatings and adhesives utilizing these resins provide superior oxygen barriers and may be heat-sealed. They are resistant to staining and have very low levels of taste and odor that are important in rigid and flexible packaging containers.

Phenoxy resins make outstanding primers because of their excellent adhesion, chemical and salt spray resistance, impact and abrasion resistance, and flexibility, they may be used on metal, wood, paper, glass, and many polymeric substrates.