Decorative Systems
Application Guide

PLUSOL-R-105 Series

Chemistry for Good

Precise. Elegant. Enduring.

PLUSOL-R-105 series are two-component (A+B) polyurethane systems specifically developed for **decorative molding, imitation wood, and architectural ornament applications**. These systems are engineered to provide an optimal balance between **flowability, surface quality, and mechanical strength**, allowing precise reproduction of fine mold details with minimal defects. Formulated with high-quality polyol blends and reactive isocyanates, **PLUSOL-R-105** systems ensure:

- Excellent **mold filling and surface replication**, even in complex geometries
- **Adjustable reaction profiles** suitable for both manual and machine casting processes
- **Wide density range (150–650 kg/m³)** to meet various design and mechanical requirements
- **Stable foam structure** with minimal shrinkage and superior dimensional accuracy
- **Superior adhesion and paintability**, enabling easy finishing, coating, or coloring of molded parts
- Long-term **durability and resistance** against humidity, temperature changes, and aging

1.Preparation

- **Material Conditioning:**
  - Components must be at **20–25 °C** before mixing.
  - Stir polyol gently before use to homogenize additives and fillers.
  - Keep isocyanate moisture-free and tightly sealed.
- **Mold Preparation:**
  - Clean and dry mold surface completely.
  - Apply suitable **release agent** (e.g. silicone- or wax-based) evenly before each shot.
  - Maintain **mold temperature** typically between **35–45 °C**, unless specified otherwise in TDS.

2. Mixing & Processing

- **Mixing Ratio:**
  - Follow the ratio defined in the product TDS (commonly between 100:80 and 100:110 by weight).
- **Mixing Method:**
  - For **manual mixing**, mix A+B for **10–15 seconds** using a high-speed stirrer.
  - For **machine casting**, ensure correct calibration of flow rates and pressures.
- **Processing Window:**
  - Cream Time: 10–60 sec (depending on grade)
  - Gel Time: 40–180 sec
  - Tack-Free: 2–5 min

  *Values depend on reactivity grade and mold temperature.

3. Casting Procedure

- Pour the mixture smoothly into the lowest part of the mold to avoid air entrapment.
- For larger parts, **multi-point pouring** or **venting holes** may be required.
- Avoid vibration during expansion and curing.
- Demold time: 5–15 min (depending on size, density, and temperature).

4. Post-Curing

- Leave demolded parts at ambient temperature (20–25 °C) for at least **24 h** before further processing (painting, coating, sanding).
- For faster stabilization, post-cure at **50–60 °C for 2–3 h** if needed.

5. Quality Control

- **Free Rise Density:** 150–650 kg/m³ (depending on product)
- **Surface Quality:** Uniform texture, no voids or flow lines
- **Hardness:** Typically Shore D 45–75
- **Dimensional Stability:** ±1 % after 24 h

Decorative Systems
Application Guide

PLUSOL-R-105 Series

Chemistry for Good

Precise. Elegant. Enduring.

6. Troubleshooting & Common Defects

Problem	Possible Cause	Corrective Action
Surface bubbles / pinholes	Excess humidity in mold or ambient air	Dry mold, control humidity <60%, reapply release agent properly
Shrinkage / warpage	Isocyanate imbalance or premature demolding	Check mixing ratio and extend demold time
Incomplete mold filling	Short cream time or insufficient mixing	Use slower-reactive grade or ensure proper mixing speed
Uneven color or gloss	Poor mold temperature control	Maintain mold temperature 35–45 °C
Surface tackiness	Insufficient reaction or moisture contamination	Increase cure temperature / ensure components are dry
Foam collapse (voids)	Excess pour volume or poor venting	Add vent holes or reduce shot weight

7. Finishing & Post-Treatment

- **Surface Preparation:**
  - Before painting or coating, ensure the foam surface is fully cured (min. 24 h).
  - Remove dust and residues completely.
- **Coating & Painting:**
  - Compatible with **acrylic, polyurethane, nitrocellulose** and **UV-curable** coating systems.
  - Avoid solvent-based paints that may attack uncured foam.
- **Assembly & Bonding:**
  - PU decorative elements can be bonded with **PU adhesive, hot-melt glue, or epoxy**, depending on substrate.
  - When installing large parts (e.g., cornices or columns), ensure mechanical fixation until adhesive fully cures.
- **Maintenance & Aging:**
  - Finished parts show excellent resistance to humidity and temperature fluctuations.
  - Avoid direct exposure to UV light without a protective coating layer.

8. Storage & Shelf Life

- Store upright in **original sealed containers**.
- Recommended temperature: **15–25 °C**, away from direct sunlight and moisture.
- Avoid freezing (< 10 °C) or overheating (> 35 °C).
- Shelf life (unopened):
  - **Component A (Polyol):** 6 months
  - **Component B (Isocyanate):** 12 months
- After opening, consume within 1 month and reseal tightly after each use.

9. Safety & Handling

- Always wear **gloves, safety glasses, and protective clothing**.
- Work in **well-ventilated areas** or under local exhaust.
- Avoid contact with skin or eyes; if contact occurs, rinse immediately with water.
- Prevent isocyanate vapors from exposure to humidity or heat sources.
- Refer to individual **Safety Data Sheets (SDS)** for complete first-aid, storage, and disposal guidelines.

9.Disclaimer

The information in this Application Guide is based on laboratory and field data. Application conditions may vary and are beyond the manufacturer's control. Applicators must ensure suitability for each specific project.

For additional technical asisstance ;

📍 **Address:**

PLUSKİM KİMYA SANAYİ VE TİCARET A.Ş.

Akçaburgaz Hadımköy Yolu Cad. Yağmur İş Merkezi No:172 Kat: 2

Esenyurt- İSTANBUL

34522

📞 **Phone:** (0212) 853 76 41

✉ **Email:** info@pluskim.com

🌐 **Website:** www.pluskim.com