

SILPAK RL-451-80

High Solids Brush-on Molding Latex Rubber

RL-451-80 is a High Solids Molding Latex Rubber that is a one-part, brush-on liquid that, after multiple coats, build up to form a tough rubber blanket mold. Molds made with natural latex are often used for casting concrete and plaster.

Physical and Handling Properties

Property	Value
Percent Solids (%)	70.00 – 74.00
Color	Natural
Ammonia Content (%)	<0.2
Density (lb/gallon)	~8.00
Viscosity, (Brookfield @ 2 RMP (80°F +/-2)	24,000 – 84,000
Viscosity, (Brookfield @ 20 RMP (80°F +/-2)	8,000 – 14,000
pH	8.00 – 10.5
Mechanical Stability (seconds)	N/A
Tensile Strength ASTM D412 (psi)	4,500 – 5,500
Tear Strength ASTM D624 (pli)	450 - 500
Elongation ASTM D412 (%)	700 - 800

Values listed above are typical and not intended for use in specifications.

Model Preparation

If possible, start with a warm (~80°F) model. The model should be free of oil, grease and dirt. Most original models do not require a sealer or release agent prior to applying liquid latex; however, if the model contains moisture, petroleum oil, or sulfur, it should be sealed with a suitable sealer. If you are unsure of how well latex will release from your model, a patch test should be done by applying a coat or two of latex to a small area. If the latex turns dark or sticks after drying, a sealer or release agent should be applied. Firmly mount the model on a suitable baseboard.

Applying and Drying

STEP 1

Brush the initial layer as thin as possible onto the model with a liberal amount of latex (flood and brush). It is important to brush the latex and not dab it; pooling of latex must be prevented. If there is pooling after the first layer is brushed on, dab the pools with a brush to help remove excess latex and prevent bubbles from forming. At the bottom edge of the original model, create an even flange of latex rubber around the perimeter. The first layer is the most critical layer. The thinner the layer, the more dimensionally stable the mold will be.

STEP 2

Oven-dry at 140°F for 20 minutes to one hour depending on the size of the model. Do not exceed 140°F as it can create bubbles and possibly delamination.

If an oven is not utilized and the layer of latex is allowed to dry in ambient conditions, it may take anywhere from several hours to a full day to dry. This range is highly dependent on temperature, humidity, thickness of application and size of the mold and could be more or less than the range provided above.

Oven-drying low-solids molding latex rubber will improve the physical properties of the finished mold.

STEP 3

The second layer can be applied (brushed or sprayed) when the first layer of latex has been given adequate time to dry, but is still slightly tacky; allowing the previous layer to dry too much could result in delamination. **NOTE: SPRAY APPLICATION OF SOME HIGHER-VISCOSITY MOLDING LATEX RUBBER IS NOT RECOMMENDED. PLEASE CONSULT POLYTEK® FOR PRODUCTS THAT ARE SUITABLE FOR SPRAYING.**

Layers should be applied as thin as possible.

After each layer, allow it to dry as instructed in **Step 2**.

For large, flat models, apply latex in a checkerboard pattern, alternating the brush direction for each coat. Since there is some shrinkage on drying, the patchwork method reduces stress and warping of the latex as it dries.

STEP 4

Apply (brush or spray) as many layers as needed (typically 15-20 layers, but this may vary) to achieve a thickness of ¼" to ½" in total. After each layer, allow it to dry as instructed in **Step 2**.

When necessary, latex can be thickened with crumb rubber, ground cork or fumed silica in order to fill undercuts or thicken sections of the mold, especially at the edges of the model. Thickeners should be added when the mold is 1/3 or 2/3 complete and must be completely wet out with latex and applied to the outside surface of the mold. Thickened latex must be allowed to dry completely as wet spots trapped in the latex can cause delamination of the mold.

If needed, reinforce latex molds by placing fabric (e.g., muslin, burlap, polyester) into a coat of wet latex and then saturate with latex. Allow the fabric coat to dry completely before applying more latex. The addition of fabric will reduce flexibility of the latex rubber and should only be used for reinforcement at the edges of the mold.

STEP 5

After all the layers are applied, the mold should be oven-dried at 140°F for 6 to 20 hours depending on the size of model.

STEP 6

Transfer the mold to a 185°F oven for 2 to 5 hours depending on the size of the model. **NOTE: THIS STEP IS NOT NEEDED FOR HIGH SOLID LATEX RUBBERS - OVERHEATING CAN DEGRADE THE PHYSICAL PROPERTIES OF THIS LATEX PRODUCT.**

If an oven is not utilized for Steps 5 & 6 and the latex is allowed to cure in ambient conditions, the final drying process may take ~3 to ~7 days. This range is highly dependent on temperature, humidity, thickness of application and size of the mold and could be more or less than the range provided above.

Using the Mold

Avoid exposing the mold to oils, grease or solvents. Molds may be washed with soap and water. Before casting plaster, wet the mold with a 1% solution of detergent in water to aid releasing air bubbles from the mold surface: no other release is usually necessary.

Storing Latex Molds

Store finished latex molds away from UV light and excessive heat (>120°F). Ensure that molds are completely dry before storing. For best results, store molds with a model in them to help retain their shape.

Shelf Life & Storage of Liquid Latex

Use liquid latex within three months. For best results, store products in unopened containers at room temperature (60-90°F). Exposure to temperatures <45°F and >80°F may damage latex, causing irreversible coagulation. DO NOT ALLOW TO FREEZE. Do not store latex in unlined, metal containers.

Safety

Before use, read product labels and Safety Data Sheets. Use with adequate ventilation. Avoid contact with the eyes, skin and clothing. Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep container closed when not in use.

Clean Up

Clean up wet and dry latex with soap and water.

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