

HIREC[®] 450

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High Repellent Coating

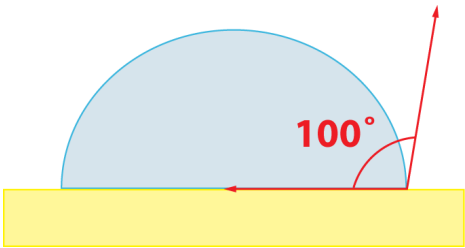
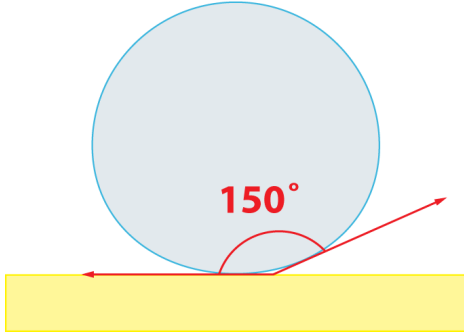


Product Information
&
Application Instructions

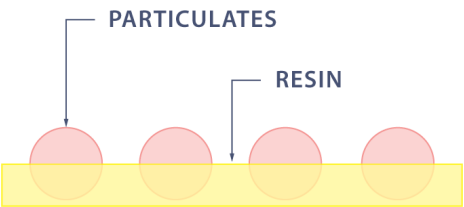
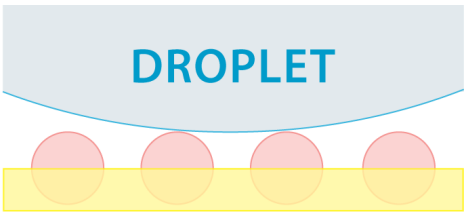
PLEASE READ CAREFULLY BEFORE USE

What is HIREC®?

HIREC is an advanced superhydrophobic coating material for the protection of high-value equipment against water-related damage. Unlike conventional water-repelling materials, water droplets do not stick to surfaces treated with HIREC; as a result, HIREC is able to provide exceptional protection against not only ice and snow, but also the gradual accumulation of water film.

Conventional Water Repellents	HIREC High Repellent Coating
	
<p>When water comes in contact with a solid surface treated with conventional water repellents, the droplets spread out over the surface and typically create a contact angle of approximately 100 degrees.</p>	<p>In contrast, surfaces treated with HIREC High Repellent Coating have a water repellent contact angle of more than 150 degrees, minimizing the area of contact between water droplets and the surface.</p>

This is achieved as a result of the unique composition of the HIREC coating material, which combines miniscule PTFE particulates and a fluorinated resin. When applied to a solid surface, the particulates and resin disperse to create a textured surface; when this surface is exposed to water, the droplets come in contact only with the raised particulates and easily roll off.

	
<p>When HIREC is applied to a surface, the PTFE particulates and resin create a textured surface.</p>	<p>Water droplets are repelled by this textured surface and easily roll off.</p>

HIREC 450 is a water-repelling material that can be applied in a single coat. It is most effective in protecting against damage from water and ice.

Before you Start:

You will need:

- HIREC450 and HIREC450 Thinner
- Masking Materials
- Gloves, mask, and eye protection
- Cotton cloth
- 1 sheet 180 grade sandpaper
- Motor-driven mixer or mixing stick
- Gravity feed air spray gun with cup
 - Nozzle Diameter: 0.059 in (1.5 mm)
 - Recommended Model: Anest Iwata: W-101-152G
 - Air Pressure: 43–71 psi (3–5kg/cm²)
- #50 wire mesh sheet
- Wet Thickness Gauge
- Dry Thickness Gauge
- 6B-4B pencil

HIREC 450 Materials



HIREC 450



HIREC450
Thinner

Instructions for Applying HIREC 450

STEP 1: Surface Preparation

1. Smooth any rough surfaces on the intended surface and apply anti-corrosive coating. The surface should be even and free from cracks, crevices, rust, etc.
2. If you intend to apply HIREC 450 to a painted surface, first apply a small test amount to confirm that there is no interaction with the existing paint, such as shrinking or peeling.

STEP 2: Masking

1. Securely cover all other equipment and surfaces in the vicinity of the intended surface with protective material (e.g., polyethylene sheets, masking tape, etc.).

STEP 3: Surface Treatment

1. Wipe the surface with a cotton cloth dampened with paint thinner to remove any oily substances such as machine oil, grease, etc. Wipe off any water on the surface with a cloth.
2. If there is any saline-based material on the surface, flush the area with water and either wipe the area dry with a cloth or apply dry air until it is completely dry.
3. To improve adhesiveness and water-repelling performance, gently rub the surface with 180 grade sandpaper after cleaning to remove shine and deteriorated layers.

4. For FRP (Fiber-Reinforced Plastic) surfaces, use sandpaper or a power brush to remove deteriorated resin and exposed glass fibers.

NOTE: If you intend to apply HIREC 450 to a FRP surface located outdoors, please be aware that the coating material does not have any exfoliating properties and will not protect against deterioration from UV rays. A primer coat and countermeasures are required when applying HIREC 450 to outdoor FRP surfaces.

5. After preparing the surface, use a brush or cloth dampened with paint thinner to remove any dust particles. **Do not use bare hands.**

STEP 4: Application of Top Coating

Paint Preparation

1. Open the can of HIREC 450 and stir until the contents become uniform. (A motor-driven mixer is recommended.)
2. Add HIREC 450 Thinner for dilution and stir for approximately 3 minutes until the contents become uniform. The standard quantity for dilution is as follows:

HIREC450:	70 wt%
HIREC450 Thinner:	30 wt%
Temperature:	68°F (20°C)

Equipment Preparation

3. Prepare the following equipment for painting:
(Brushes and paint rollers should not be used.)

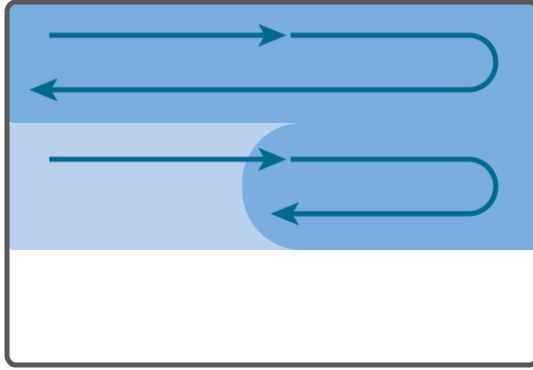
Air Spray Gun:	(Gravity Feed Spray Gun with Cup)
Nozzle Diameter:	0.059 in (1.5Φmm)
Recommended Model:	Anest Iwata: W-101G-152G
Air Pressure:	43–71 psi (3–5 kg/cm ²)

Filtering

4. Filter the paint through a wire mesh (#50 or equivalent) into a paint cup or tank.

Painting

5. Position the spray gun 8–12 in (20–30 cm) away from the intended surface and move at a **speed of between 0.7–1.0 ft/sec (0.2–0.3 m/sec) to achieve uniform coating.** After applying each stroke, double-back and apply over the previous stroke in the opposite direction.



6. Apply two coats, allowing **10–15 minutes** for drying in between each coat. The final coating thickness after drying should be 15–20 μm , although there will be some variation depending on the object being coated.

Quantity Applied: 115–150g/m²
(This amount excludes material scattered in the surrounding area.)

Note: The contents of the HIREC 450 dilution coating compounds settle quickly when left standing. The paint mixture should be continuously stirred throughout the painting process.



STEP 5: Drying (IMPORTANT)

1. The water-repelling properties of HIREC 450 will develop after a drying period of at least **24 hours** in a location with an ambient temperature of 68°F (20°C). Make sure the smell of thinner can no longer be detected. The hardness of the material will continue to increase thereafter and will fully stabilize approximately one week after application.
2. To shorten the drying time, or to enhance the adhesion of the coating film or water-repelling performance, heat the surface in the following manner:
 - a) Dry in a location with an ambient temperature of 68°F (20°C) for 10–30 minutes
 - b) Increase the temperature to 176–212°F (80–100°C) for one hour
 - c) Reduce the temperature back to 68°F (20°C) and leave undisturbed for 12 hours
3. Inspect the dry painted surface to confirm that it is smooth and uniformly painted. There should be no shine and water should not adhere to the painted surface.

4. If the painted surface is not even or there are missed areas, scratches, etc., apply additional paint to the areas in need of reapplication.
5. Perform a Pencil Test with a 6B~4B pencil to determine the resistance of the coating to scratch effects on the surface.

Note: Surfaces coated with HIREC 450 are very slippery. Do not place any objects on HIREC 450 coated surfaces.

HIREC 450 should be used within 6 months from the date of manufacture and should be stored in a location with an ambient temperature of 77°F (25°C).

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Targeted State Checking Criteria (HIREC450)

--Use this sheet with the instructions--

STEP 1: Surface Preparation

- No defects, such as rust, expansion or cracks, on the targeted surface. Any holes, bumps, and laitance are treated.
- No potential damage by interaction with the existing coat on the targeted surface.

STEP 2: Masking

- The proper area is masked adequately.

STEP 3: Surface Treatment

- No oil or water is observed on the targeted surface.
- Shine is eliminated from the surface.
- No dust particles are present on the surface.

STEP 4: Application of Top Coating

Paint Preparation

- No lumps at the bottom of the can. Contents are mixed thoroughly.

Equipment Preparation

- Equipment is appropriate and in good working order.

Filtering

- No foreign objects or coagulation are in the filtered paint.

Painting

- No paint drips, thin spot, or unpainted areas.

STEP 5: Drying (IMPORTANT)

- Smell of thinner is no longer present.
- No glossy areas on the surface.
- When sprayed with water, it does not adhere to the painted surface.