

SW-RP1



**SEAWALL
REPAIR NETWORK**

FAST REACTING HIGH FOAMING SEMI-RIGID INJECTION RESIN FOR REPAIRING SEAWALLS, LEAKING STRUCTURES AND SOIL STABILIZATION

DESCRIPTION

SW-RP1 is a one component, closed cell, hydrophobic, water reactive, solvent and phthalate free, low viscosity polyurethane injection resin for cut-off of large water leaks and void filling around seawalls. SW-RP1 will react and expand quickly upon contact with water.

USES

- **Seawall repair.**
- Chemical wall for erosion control of beachfront properties and land masses that do not have a seawall or water barrier.
- Water cut-off of large flow and high pressure water leaks.
- Stabilizations and water cut-off of large cracks, voids and gravel layers.
- Pre and post injections in mines, tunnels, pipe jacking, drill & blast and TBM applications.
- Crack and gravel layer injections in concrete structures.
- Soil stabilization and anchors in porous geology.
- Water cut-off of sewer water leaks and sewer stabilization.
- Probe grouting for below grade pipes.
- Void filling.

ADVANTAGES

- Single component.
- Different reaction times are possible by adjusting the percentage of SW-RP1 Accelerator .
- Cured polyurethane is semi-rigid and exhibits high strength and good chemical resistance. (contact our Technical Service for chemical resistance).
- Cured polyurethane is harmless for the environment and resistant to biological attack.
- Up to 40x - 50x expansion.
- **Certified to NSF 61-5 (Approved for contact with drinking water).**



APPLICATION



Note: the following is a typical application description. For guidance on specific projects, please contact Alchemy-Spetec tech support.

PRELIMINARY ANALYSES

Signs a seawall is in need of repair: small sinkholes near the wall, voids near the edge of the wall, cracking concrete in the seawall or nearby slabs, and damage to nearby structures. Capillary pathways of leakage can be found over 100 feet (30.48 meters) away from the visible leak, depending on the soil matrix.

PREPARATION OF THE SUBSTRATE

Polyurethane foam can be injected through pipes directly into voids and loose sandy soil using a single component pump (airless sprayer or double diaphragm pump). Ensure the soil has enough moisture content to cause a reaction of the foam (slightly damp to saturated).

PREPARATION OF THE PRODUCT

Read the technical and safety data sheets in advance. Vigorously shake the SW-RP1 Accelerator before use and add the required quantity (2-10%) into the SW-RP1 resin. Mix the accelerator homogeneously into the resin and protect against moisture and rain to prevent premature reaction. Only mix the amount of material that will be used. Catalyzed material cannot be stored.

PREPARATION OF THE EQUIPMENT

Depending on the application, injection can be carried out using a hand pump, pneumatic pump or electric pump. Use separate pumps for injection of water and polyurethane resin. Check that the pump is working properly. Prior to injection, the resin pump must be flushed with appropriate pump flush and be completely free of water to prevent pump blockage.

APPLICATION

1. Insert pipes down to the lowest level to be injected. This can be done through driving the pipes mechanically, water jetting, or air jetting them down.
 2. Ensure the soil has enough moisture content to cause a reaction of the foam (slightly damp to saturated).
 3. Blend with polyurethane to desired level.
 4. Connect the hose from the pump to the injection pipe. The hose should have a ball valve to control the flow of the material.
 5. Inject the polymer either at a pre-determined rate (rule of thumb is 1 gallon [3.79 liters] per vertical foot [0.3 meters]) or until sufficient back pressure is established. Reacting polymer will permeate soil and expand to fill voids. Do not exceed 1 gallon in 5 minutes.
 6. As each gallon is injected, raise the pipe 12" (30.48 cm) and repeat the process. Once the pipe is within 24" (60.96 cm) of the surface you will probably get material flowing back to the surface (known as "refusal"). Stop at this point and move to the next pipe.
 7. Repeat this process until the entire area has been injected.
 8. A containment barrier should be used on the water side of the seawall to capture any foam that leaks out of the seawall during the process.
- Note: Check valve type drains may need to be installed in the seawall after injection to allow water from heavy rains to vent out and reduce pressure on the seawall. These drains will allow water to flow out, but not soil.

Product can also be injected behind walls and bulkheads using mechanical packers or ports.

REQUIRED TOOLS

Drill and drill bits of appropriate diameter and length. Mechanical Packers of appropriate diameter and length. Manual, electric, or pneumatic injection pump.

CLEANING AND MAINTENANCE

After the injection, clean the pump with pump cleaner. If the pump will not be used for several days, put oil into the pump and leave it there until the next usage. Never rinse the pump with water. After injection, remove the packers from the concrete and fill the holes with an appropriate fast-setting patching material.

COMPLIMENTARY PRODUCTS

Pump Cleaner, Oakum, Injection Needle.

ADVICE / FOCAL POINTS

Avoid injecting in temperatures below freezing. In extremely cold conditions, it is recommended to warm the resin and . Since SW-RP1 is water-reactive, liquid water should be present.

TECHNICAL DATA**APPEARANCE**

SW-RP1 Uncured

(Appearance brown liquid)

Viscosity at 77°F (25°C)	(ASTM D4878-98)	± 215 cP (± 215 mPa.s)
Density	(ASTM D3505-96 [2000])	± 70.92 lbs/ft ³ (± 1.12 kg/dm ³)

SW-RP1 Accelerator, Accelerator for SW-RP1

(Appearance: yellow - orange liquid)

Viscosity at 77°F (25°C)	(ASTM D4878-98)	± 75 cP (± 75 mPa.s)
Flash point	(ASTM D1310-86)	313°F (156°C)
Density	(ASTM D3505-96 [2000])	± 65.5 lbs/ft ³ (± 1.05 kg/dm ³)

REACTION TIMES (" = Seconds)

SW-RP1 Accelerator	41°F (5°C)		59°F (15°C)		77°F (25°C)				
	Start	End	Start	End	Start	End			
5%	18"	95"	40X	18"	78"	40X	14"	55"	49X
8%	15"	60"	42X	14"	51"	42X	10"	43"	49X
10%	15"	48"	42X	11"	41"	42X	8"	35"	49X

Properties will vary depending on application conditions.

ESTIMATING QUANTITIES

Consumption is dependent on jobsite conditions such as amount of water, temperature, amount of , and expansion rate listed in Reaction Times.

PACKAGING

SW-RP1 is packaged in 250 gallon (946.35 liter) totes.

SW-RP1 Accelerator is packaged in 5 gallon (18.93 liter) pails.

SHELF LIFE AND STORAGE

SW-RP1 is moisture sensitive and should be stored in a dry area between 40F (5C) and 86F (30C). Shelf life of the resin: 24 months in original packaging. Shelf life of the accelerator: 24 months in original packaging. Once opened, containers should be used as soon as possible.

SAFETY PRECAUTIONS

Avoid contact with eyes and skin, always use personal protective equipment in compliance with local regulations. Read the relevant Safety Data Sheet before use. When in doubt contact Seawall Repair Network.

FOR INDUSTRIAL USE ONLY. KEEP OUT OF REACH OF CHILDREN. NOT FOR INTERNAL CONSUMPTION. READ SAFETY DATASHEET PRIOR TO EVERY USE.



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