AP FILL 420

HYCHEM
Infrastructure

TWO COMPONENT, HIGHLY EXPANSIVE POLYURETHANE FOAM

2c
2-COMPONENT

Description

AP FILL 420 is a two component, high expansion, hydro insensitive polyurethane foam. Unconfined density is approximately 2 lbs/cubic foot (32 kg/cubic meter).

Advantages

- 90% of full strength in 15 minutes
- High expansion rate of 35x
- Works in wet environments – displaces water
- Bonds with soil and concrete
- Closed cell

Uses

- Filling abandoned pipes, mine shafts, etc.
- Filling voids
- Floatation foam

Application

Note : The following is a typical application description. In case of other jobsite parameters, please contact our technical department.

PRELIMINARY ANALYSES

For slab lifting, soil stabilization, consolidation grouting, and all other forms of geotechnical grouting, it is advised to review soil reports from the job site. Take note of all structural elements and considerations and consult with geotechnical or structural engineers as needed. Locate all utilities prior to drilling or driving pipes into the ground.

PREPARATION OF THE SUBSTRATE FOR SOIL STABILIZATION

Soil probe spacing is most commonly 1'-5' (0.31m-1.52 m) on center and as needed across the surface of the substrate. This will depend on the type of stabilization and the topical makeup of the ground. Depths will vary from job to job but must be established before work is to begin. Alchemy-Spetec Technical Service can help you with the soil probe spacing design. Confirm clearances and paths to injection sites for large equipment and/or Alchemy-Spetec mobile injection rigs in advance.

PREPARATION OF THE SLAB FOR LIFTING

Injection location spacing is most commonly 3'-4' (0.91m-1.22 m) on center in a grid pattern and as needed across the surface of the slab. Location of injection points must be established before work begins. Protect all exposed surfaces from exposure to leaking polyurethane resin. As necessary, use plastic sheeting to cover walls and other items that cannot be moved. Apply AP Flush 125 to the slab surface around injection points to prevent foam from staining / bonding to the concrete. Confirm clearances and paths to injection sites for large equipment and/or Alchemy-Spetec mobile injection rigs in advance.

PREPARATION OF THE PRODUCT

Read the technical and safety data sheets prior to commencement of the injection work.

PREPARATION OF THE EQUIPMENT

Alchemy-Spetec proportioning equipment in Cart System or Rig configurations should be tested to confirm equal flow and pressures from both A and B lines. MixMaster Pro should always be thoroughly inspected for cross-contamination or foreign buildup of any kind prior to injection.

HYCHEM
Head Office: 1/30 Bluett drive
SMEATON GRANGE NSW 2567
PH: 1300 HYCHEM
WWW.HYCHEM.COM.AU

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APPLICATION

- Start the injection at the first probe and work way across grid pattern as needed taking note of travel of foam, connectivity to next hole location, and volumes used.
- Do not over pressurize while injecting; the correct injection pressure is the pressure that allows resin to penetrate the soils and/or fill the voids and keep the MixMaster Pro operating properly
- Take note of reaction time of material and be sure to purge injection gun regularly to prevent material curing in the gun.
- If lifting slabs, monitor lift with Alchemy-Spetec Dial Indicator Cranes to prevent over-lift.
- If stabilizing soil, pay attention to volume/vertical distance estimation and for material not penetrating and exiting around probe only.
- Clean the MixMaster gun thoroughly with Alchemy-Spetec pressure pot system, and cap supply lines.
- Run material through the pump as a maintenance step every 7-10 days.

REQUIRED TOOLS

Proportioning pump with heated lines, drill bits, MixMaster Pro injection gun, ports, Alchemy-Spetec Flush, soil probes.

CLEANING AND MAINTENANCE

After the injection, clean the pump with AP Flush 121. Conduct a full Alchemy-Spetec-recommended gun flush after every use. Material can remain in cleaned and capped lines. After injection, remove the packers from the concrete and fill the holes with a fast setting cement or any other appropriate filler material.

COMPLIMENTARY PRODUCTS

½” (12.7 mm) hydraulic tubing, flush pot, dial indicator cranes, airless flush pump, air compressor, ports, AP Flush 121.

ADVICE/FOCAL POINTS

Avoid injecting by temperatures below -4°F (-20°C). In extreme cold conditions it is recommended to warm both components to 60-80°F (16 – 27°C).

Technical Data

APPEARANCE

Physical Properties – Cured (Unconfined)

AP FILL 420			
Compressive Strength	(ASTM D-1621)	22 p.s.i. or 3,168 p.s.f.	1,517 millibar
Expansion	(Unconfined)	35 times	
Density	(ASTM-D 1622)	1.8 to 2.2 lb/ft3	28.83 to 35.24 kg/m3millibar
Shrinkage	(ASTM D-1042/D-756)	Negligible	Negligible
Closed Cell Content	(ASTM D-2856)	90%	-
Water Absorption	(ASTM D-2127)	1% by Volume	-
Exothermic Reaction Rate	-	Low	-

Properties will vary depending on application conditions.

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Estimating Quantities

Consumption has to be assessed on site and is influenced by the specific AP FILL product used, soil type, load to be lifted, amount of water in the substrate, soil compaction, and possible presence of voids.

REACTION TIMES

Reaction Time @ 77°F / 25°C	
Initial Reaction Time	15 seconds
Tack Free	125 seconds
90% Full Strength	15 minutes

Packaging

AP FILL 420 is supplied in 100 Gallon (378.54 Liter) Units, 500 Gallon (1,892.71 Liter) Units.

Storage and shelf life

Store between 50°–80°F (10°–26°C).

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. Safety Data Sheets are available on www.alchemy-spetec.com. When in doubt contact Alchemy-Spetec Technical Service.

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