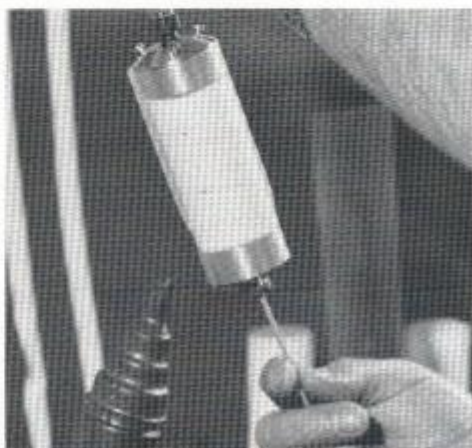


ADTECH "GEOSHRINK" SLEEVES

Fluoroplastic Heat-Shrink Sleeves for Unconsolidated/Friable Reservoir Sediment Core Analysis

- Can be shrunk onto frozen, punched and standard core plugs
- Relatively low shrinkage temperature
- Completely unaffected by chemicals & solvents
- Completely unaffected by simulated brine
- Temperature stable in live crude and reservoir brine to 200°C
- Stable specific gravity
- Transparent
- Wide range of sizes



GEOSHRINK CORE SLEEVES

ADTECH GEOSHRINK sleeves are made from special Teflon[®] fluoropolymers and have been developed over the last 12 years ago to gain acceptance with a wide circle of core analysis contractors, oil company exploration and production research laboratories and petroleum and earth science departments in universities and high technology institutions.

The mounting technique in conjunction with unsintered Teflon[®] PTFE wrap offers a significant advancement from malleable metal foil tubes (lead, tin aluminium copper, nickel etc.) for the ease of mounting frozen and punch cut plugs.

When the end-faces of plugs are protected with a combination of fine and coarse stainless steel screens and retained by GEOSHRINK, the resultant assembly can be safely subjected to extensive solvent extraction, drying and subsequent core analysis in a series of increasing complexity.

* Teflon is Du Pont Trade Mark

TECHNICAL CONSIDERATIONS

GEOSHRINK is primarily a mounting aid for weak formations but due to its wide size range availability (1" to 6") it can be used as a versatile test jacket in advanced rock mechanics testing of all rock types. GEOSHRINK forms a versatile tough and flexible support of the core plug, but due to its hardness (D55) the conformance between the core surface and the inside of the plastic tube is not ideal which could lead to fluid by-pass.

Application of an interposing sintered Teflon[®] tape wrap of different overlapping pattern and thickness ensures the filling of the surface asperities of the core. Confining forces developed by GEOSHRINK amalgamates the Teflon wrap to form pressure tight seal, whilst it continues to deform under the sustained overburden pressure in core analysis testing conditions.

GEOSHRINK and Teflon[®] tape are inert (constant S.G.) thus a material balancing calculation procedure will readily yield accurate input data for Porosity Permeability and Grain Density of the mounted plug using slightly modified standard core analysis procedures.

Standard ADTECH Geoshrink Sizes

Nominal Core Dia. (inch - mm)	GEOSHRINK Order code	internal dia. as supplied (mm)	Min internal dia after shrink (mm)	Wall thickness before shrink (mm)	Average Wall thickness over core
1 - 25.4	GFS23	31	23	0.4	0.5
1.5 - 38	GFS32	43	32	0.4	0.5
2 - 51	GFS46	62	46	0.4	0.5
2.5 - 64	GFS60	80	60	0.4	0.5
2.6 - 67	GFS60	80	80	0.4	0.4
3 - 76	GFS70	95	70	0.4	0.5
3.5 - 89	GFS70	95	70	0.4	0.4
4 - 102	GFS95	128	95	0.4	0.5
4.5 - 114	GFS95	128	95	0.4	0.4
5.25 - 133	GFS125	167	125	0.4	0.5
6 - 152	GFS125	167	125	0.4	0.4

APPLICATION TECHNIQUE

Method for 1" & 1½" Core Plugs.

A piece of GEOSHRINK is cut to cover the full length of the plug plus 25 to 35mm. Cutting is best done with a scalpel blade against the edge of a metal tube which gives a square cut and does not distort the tube. The extra 20mm to 30mm of GEOSHRINK is needed to pre-shrink one end of the cut sleeve on a plug gauge to enable easy assembly of base, screen, core sample etc.

The base shrinking is achieved by applying the heat from an approx. 20mm diameter orifice at an angle of about 30° from the vertical axis of the plug gauge. The plug gauge is normally an aluminium tube whose diameter is slightly larger than the base platen or core sample.

With suitable skills and correct equipment the bottom region can be controlled to shrink only 15mm to 20mm. The resultant "Preform" is pulled off the plug gauge and slid on the base shrinking platen so that at least 5mm length of shrunk GEOSHRINK is extended above its top surface. A coarse stainless steel end screen with edge "barbs" pointing upwards is dropped into the tube and pushed against the base platen with the plug gauge. A fine stainless steel end screen is placed on top of the

coarse one and pushed firmly in place as before. A liquid nitrogen cored and cut or dry punched/cut plug is carefully spiral wrapped on its outer surface with appropriate thickness (see accessories list) of Teflon® unisintered tape. The prepared plug is carefully but firmly pushed against the fine screen. The top end of the plug is fitted with a fine screen followed by a coarse one with the "barbs" pointing downwards. The whole "sandwich" assembly is held between an other platen similar to the base one. The final shrinking is done whilst this stack is held together firmly and spun to ensure even heat application.

For best result the heat gun should be held in a simple jig for the best incident angle of the heat stream. The heat is applied from bottom upwards until the full extent of the sample plus the top platen is covered.

To achieve the necessary dexterity and protection from heat, the platens are fitted with long ¼" diameter stems which can be held securely during the critical manipulations. When the shrinking is completed the sample is pulled off the platens and the excess GEOSHRINK is cut back to about 5mm beyond the coarse screen.

ACCESSORIES

Heat Gun, 240 volt, 1500 watt, variable temperature.
Teflon® Unisintered Tape 12mm wide, 0.075mm thick
Teflon® Unisintered Tape 12mm wide, 0.20mm thick
Stainless Steel Screen, Coarse (20) (1" / 25.4mm)
Stainless Steel Screen, Fine (200) (1" / 25.4mm)
Stainless Steel Screen, Coarse (20) (1½" / 38mm)
Stainless Steel Screen, Fine (200) (1½" / 38mm)
Other supplies are available by quotation on request.

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