ALTACHEM LTD.

Technical Data Sheet

Altachem Part No: AC-20 Series	EDMONTON STOCK SIZE	Select Part No: Acid Sticks

ACID STICKS
(Acid Jobs-19% Active-Injection Wells-Maintenance-Plungers)

	Color – Brown	Packaging – Cardboard
	TDG – Regulated Product	Allowable – Ocean Freight

ACID STICK SIZES			STICKS INITIAL SLUG TREATMENT	Weight Ea. Stick.		
3/4 X 15	.750 X 15	17.48 X 381 mm	8 to 24 Sticks per foot of interval	5.1 oz.	0.31875 lbs.	144.7125 g.
1 X 15	1 X 15	25.4 X 381 mm	3 to 9 Sticks per foot of interval	8.4 oz.	0.525 lbs.	238.35 g.
1 1 / 4 X 15	1.25 X 15	31.75 X 381 mm	2 to 6 Sticks per foot of interval	13.6 oz	0.85 lbs	385.9 g.
1 3 / 8 X 16	1.38 X 16	34.925 X 381 mm	2 to 5 Sticks per foot of interval	15.1 oz.	0.94375 lbs.	428.4625 g.
1 5 / 8 X 18	1,58 X 18	41.275 X 381 mm	1 to 3 Sticks per foot of interval	25.8 oz.	1.7 lbs.	732.075 g.

HS Code	2811.1961.10	Regulations	TDG
Form	Solid	Melting Point	123°F – 50.5°C
Color	Brown	Solubility in Water	100%
pH	2 -3	Solubility in Brine	100%
Specific Gravity	1.094	Solubility in Crude	Insoluble

ACID STICKS® are water-soluble sticks that release acid down-hole in water injection wells to remove carbonate scale and rust deposits. ***ACID STICKS®*** are a combination of acid, surfactant, dispersing agent, iron sequesters and inhibitor in solid form.

PRODUCT USES & ADVANTAGES

ACID STICKS® are primarily used in water injection wells to remove carbonate scale, rust deposits, and lower injection pressures. Injection pressure drops of several hundred PSI have been observed following ***ACID STICK®*** treatments. Some wells have gone on vacuum and taken water by gravity. Success has also been experienced in some oil wells, gas wells, and water supply wells.

ACID STICKS® are dropped directly into the well or introduced to the system through the water supply tank. Dropping the stick directly into a well is best because not as much dilution will occur. In a well with tubing obstructions or small valve opening, ***ACID STICKS®*** may be successfully used by first dissolving the sticks in fresh water and then pumping or pouring the solution into the well.

ACID STICKS® are very economical (as compared to conventional scale removal operations) and can eliminate or delay the need for HCl acid treatments. Continuous treatment with ***ACID STICKS®*** (especially after a conventional acid or clean-out job) can extend the time period between future scale removal operations. ***ACID STICKS®*** are less corrosive to steel pipe than conventional liquid HCl acid jobs because most of the acid generated by the stick is released downhole. Conventional liquid HCl acid reacts with the steel, rust, and scale inside the pipe all the way down the well. ***ACID STICKS®*** are corrosion inhibited and mildly corrosive to steel (like inhibited amid sulfonic acids).

ACID STICKS® are safe to handle and easy to use by less experienced field personnel; however, like all acids, contact with eyes or skin should be avoided. ***ACID STICKS®*** are safe to use in cement lined tubing and plastic lined pipe. Continued treatments over time through a by-pass feeder into cement lined pipe should be avoided.

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SAFETY & HANDLING

Please review SDS prior to using this product. As with all industrial chemicals, contact with eyes or skin should be avoided. Wash thoroughly with water if contact with skin is made. Balls should be stored in a cool dry place. Always remove ball from plastic bag or cardboard tube before using. Bag or tube can be used as a glove to avoid contact with hands. .

DISCLAIMER OF LIABILITY

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TREATMENT DETERMINATION & PROCEDURE FOR WATER REMOVAL

The number of ***ACID STICKS®*** to be used is based on the number of feet of perforated interval or open hole and severity of scale build-up. Field tests indicate the best results were achieved by using a large initial slug treatment (1.8 to 5.4 lbs. of stick per foot of interval) followed by smaller periodic treatments (about half the initial slug amount).

NOTE: A REACTIVE EQUIVALENCY OF ACID STICKS vs HCL ACID RATIO

This was determined by field tests. These tests indicated that about 10 Senior ***Acid Sticks®*** dropped in an injection well resulted in an equivalent pressure drop as did using 120 gallons of 15% HCl acid. Liquid HCl acid loses strength by reacting on the steel, scale, and rust inside of the pipe all the way down the well while the sticks release most of their acid down-hole.

THE MOST COMMON PROCEDURE

Is to shut-in well and drop sticks through lubricator and return well to injection. This procedure is best for open-hole, no rat-hole, low rate wells, or wells deeper than 3,300 feet. FOR SHALLOW PERFORATED WELLS WITH RAT HOLE drop sticks and leave well shut-in about 15 minutes or until sticks fall to the perforations (whichever occurs first) then return well to injection. The time in minutes for the sticks to fall to the perforations in a shut-in well is equal to the depth of perforations divided by 110. (Time, min = Depth, ft/110).

PRODUCT SPECIFICATIONS

The stick will normally dissolve in 20 to 80 minutes (in moving water or when falling through water) depending on temperature, salt content and relative water motion. ***ACID STICKS*** are 100% soluble in water. The melting point of the stick is 123°F. The stick will dissolve in water in wells with BHT below 123° (just at a slower rate). Lab tests indicate the dissolving rate in 50,000 PPM moving brine water to be 105 minutes @100°, 38 minutes@120°, 7 minutes@140°, and 2 minutes@180°. If slowing the dissolving rate is desired, coat ***ACID CAPS*** with oil or grease. The specific gravity is 1.23. The falling rate through fresh water is approximately 110 feet per minute. Gas moving up tubing will often change falling characteristics.

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