



YOUR TANK LINING SPECIALISTS

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ALKRETE TANK LINING MATERIAL – TECHNICAL DATA SHEET

“Alkrete” Aluminate Cement Lining was developed by the Arthur S. Leitch Company in 1962 specifically designed for potable hot and cold water storage tanks. With assistance from North Americas largest cement supplier “The Lafarge Group”, Lafarge’s most recognized engineer and source of technical information was enlisted to research and develop a potable lining material that would offer both; long-term protection for steel surfaces against corrosion and be suitable for hand application. End result was a high performance lining that could bond to steel surfaces at the necessary thickness offering corrosion protection and prevention of premature lining failure. Since its development, over 40 years ago, thousands of applications for both new and mature tanks have afforded Alkrete with an outstanding track record.

Originally certified by The Warnock Hersey Company, Alkrete has since been certified to CSA, NSF/ANSI 61 specifications for potable water use. The CSA group originated in 1919 and has since become one of the worlds most trusted agencies for certifications and standards. To support North Americas growing appetite for certification services, CSA’s water products testing laboratory in Toronto, Canada, tests to key water quality standards.

Common Markets

Apartment / Condominiums
Correctional Facilities
Food Process
Engineering Firms

Hotels / Motels
Hospitals
Linen Facilities
Office Buildings

Retirement Homes
Schools / University’s
Sports Complex
Tank Manufacturers

Alkrete Lining Material Guidelines

The following information points out various installation procedures but cannot cover all variations in field conditions. This information should be used as a guide only. The installation of this material should only be completed by an experienced Alkrete applicator. Their knowledge and experience will ensure the most favorable results. Contact HydraStone for a list of qualified applicators in your area.

Install a corrosion resistant Alkrete lining in accordance with the following specifications. All work is to be inspected at each stage by the party responsible for quality control and be completed within confined space regulations.

Tools Required

Mortar mixer / Wheelbarrow, Mason Hoe, Masonry Brush - 1-1/2" / 38mm thick, Pointed Trowel, Pool Trowel - 4" x 10" / 102mm x 254mm.

Surface Preparation

Plug all connections with sponges, plastic caps or other types of plugs, to prevent AlKrete from entering openings.

The steel surface shall be cleaned to remove oil, dirt, grease and contaminants or other coatings. Cleaning can be accomplished by:

- High-pressure water blaster is acceptable if it can clean the steel so it will exhibit a tight cohesive surface suitable for bonding of AlKrete lining.
- Rust bloom is perfectly acceptable and will aid in mechanical bond.

On mature steel, the substrate must be free of any holes and should be inspected and repaired as necessary (if pressure vessel... proper procedures must be followed for repair) prior to installing the lining.

Installation is to be accomplished when the surface temperature is between 40°F/4.5°C and 105°F/40.6°C. Fluctuations in temperature are permitted for short periods of time. If temperatures will be below or above this range for a majority of the time, the area should be heated or cooled to insure a sound lining application.

Metal Reinforcement

The use of expanded metal or wire mesh is recommended for tanks with flat dish heads or diameters larger than ten feet. Expanded metal or wire mesh should be tacked on metal anchors or secured directly against the surface of the tank.

Mixing

AlKrete is mixed at the rate of approximately 1 imp. Gallon / 4.2 liters of water per 23kg / 50lb bag. The amount of water required is dependent on the level of humidity. Mix the AlKrete to a mortar-like consistency, not too dry or too wet.

Water for mixing the AlKrete lining shall be clean, cool, potable water, free from objectionable quantities of silt, organic matter, alkali, salts and other impurities

Application

In hot water storage tanks, where heating bundles are required, remove bundle if possible, to ensure proper application of AlKrete lining in nozzle area (make certain thickness of lining will not inhibit bundle from being reinstalled). If the heating bundle cannot be removed, it must be covered to shield from rebound material.

On horizontal vessels, apply AlKrete coating to rear dish head first working your way back toward man-way.

For vertical tanks, start at the top head, working around openings first to prevent the lining from dropping.

After beginning with the dish head, start on the cylinder and apply the first coat. Apply first coat as evenly as possible at an approximate thickness of 1/4" - 3/8" / 6mm – 10mm. Do not

line the floor of the tank during the first coat and clean any excess amounts of Alkrete from that area. Leave the lining to set before applying the second and final coat. The set up time depends a great deal on ambient conditions. Warm dry conditions will allow shorter set times than damp, cooler conditions. Generally, allow 20 minutes to 1 hour for AlKrete to set. In some cases, the second coat can begin directly after the first coat is applied if the starting point has set.

Do not allow the first coat to set up too hard since this will result in a delaminated lining.

The first coat should be sticky to the touch when applying the finish coat. While the first coat is setting up, AlKrete line the man-way cover to which you have previously tack welded on wire mesh or metal tabs. This is essential in creating a good bond to the cover that is generally subjected to rough treatment.

The finish coat is almost a repetition of the first. Finish the top/rear head first, then the cylinder. The final coat should be trowelled smooth to a final combined thickness of 5/8" - 3/4" / 16mm – 19mm. Use a wet masonry brush on entire final coat to remove any imperfections in the lining. It is extremely important that the inner ring be free of lining material to ensure a proper seal.

When the entire lining has been brushed, sweep out the excess AlKrete from the bottom of the tank. Apply the finish coat to the floor in one thick application. Exit the tank and reach in through the man-way to complete the final section of the floor.

Moisture Cure

AlKrete linings should be moisture cured by securely covering man-ways, nozzles, couplings etc., with plastic and tape directly after the lining is installed. It is imperative that all openings be tightly sealed to cure the lining properly or loss of strength and cracking may occur.

After 12-hour curing period, spray tank lightly to remove loose debris then fill slowly. For new tanks, water-spray the lining approximately 12hrs after initial moisture cure, and reseal, leaving a small amount of water inside the tank until shipment.

TECHNICAL DATA SHEET

Life Test Temperature Range

100 cycles of dry heat at 350°F / 176.7°C and then quenched in tap water. Appearance after test, not cracking or spalling, condition good.

Maximum Temperature Test

Material was tested to 900°F / 482°C and held for 30 minutes, appearance slightly lighter and strength unaffected.

Porosity and Density Test

Initial Suction Rate – 0.163 gms/sq.inch/1minute

Density - 136.4 lbs per cu.ft / 185kg cu.m

Suction rate is low (equal to .38 gms per 30 seconds)

Shrinkage Test

Shrinkage – 0.00002%

PH and Solubility Tests

Sample immersed in a definite volume of distilled water for 48 hours. The pH of the water extract and the soluble matter determined. Six extractions were made on the same sample:

Extraction No.	PH	Soluble Matter
1	11.01	0.065%
2	11.15	0.054%
3	11.25	0.051%
4	11.20	0.042%
5	11.23	0.035%
6	11.20	0.032%

Note: The Warnock Hersey Company, a third party testing laboratory, prepared the above results.

If you have any questions regarding technical information of Alkrete lining material, please feel free to contact Mr. Jamie Russell at HydraStone Industrial Coatings Inc., 519-766-8466.