

CORROSION ENGINEERING SPECIFICATION FOR INSTALLATION

ANCHOR SPACING FOR TUFCEM™ SILICATE GUNITE LININGS

1. SCOPE OF WORK

- 1.1 This specification will outline the recommended spacing for anchoring ErgonArmor TUFCEM Silicate Gunite linings.

2. MATERIALS

- 2.1 Potassium silicate gunites are resistant to a broad variety of corrosives found in industrial gases from various fuel-fired boilers. These cements, when suitably reinforced, have been found to be a cost-effective, acid-resistant lining for such stacks.
- 2.2 Potassium silicate cements, installed by the dry gunite method. Solution is introduced at the nozzle, where mixing takes place.
- 2.3 Chemical-Resistant Membrane. PACMASTIC™ 325 Membrane or TUFCEM II Membrane are used in combination with potassium silicate cements in industrial stacks and ducts, sulfur pits and other applications.

3. REINFORCEMENT OF GUNITE LINING

- 3.1 Acid-resistant potassium silicate gunite linings must be anchored. Anchorage shall be a minimum of 304 stainless steel V-Type metal anchors, or material suitable to the corrosive environment.
- 3.2 Stud anchors shall be welded in accordance with the anchor manufacturer's specifications.

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- 3.3 Anchors shall be placed in a standard square pattern on the floors, walls and overheads. Anchor spacing shall be as recommended in section 5.0 below.

4. BENDING OF ANCHORS

- 4.1 After priming is completed, each anchor shall be bent with a hammer or heavy wall tubing bending tool so that the angle is greater than 90° between the tines, but less than 180°. They shall be bent in such a manner that there is a minimum 3/4" (18 mm) gunite coverage over the tips of the tines.
- 4.2 Any anchor welds that fail during bending the anchors shall be completely removed and replaced.

5. RECOMMENDED ANCHORING PATTERN

- 5.1 Anchors for chemical service shall be SS 304 or any other alloy - made to order and available from Anchors Unlimited, Verona, PA. For a nominal 2" (50 mm) lining, the anchor dimensions shall be 3.25" (87 mm) overall, drilled into the concrete to a depth of 2.25" (32 mm), using a hammer drill with SDS drill bit - 1/4" (6 mm) x 6" (150 mm) (drill bit part number 0321, 25 pieces per pack).

Upon splitting anchors the total anchor height should not exceed 1.5", ensuring at least 1/2" (13 mm) coverage over the anchor. Anchor spacing is a function of lining thickness and orientation, and shall follow good industry practice. An approximate anchor count per square foot is as follows for the following examples:

9" (230 mm) spacing 1.89 anchors - thus 10 SF x 1.89 = 19 anchors per 10 sf (204 per sm).

8" (200 mm) spacing - 2.33 per SG, 23.3 per 10 SF, (250 per sm).

6" (150 mm) spacing- 4.03 per SF, 41 per 10 SF, (441 per sm).

For overhead orientation, more anchors (tighter anchor spacing) should be used.

Note: Insufficient anchor spacing will result in the gunite lining cracking and falling away from the substrate. If in doubt err on the side of more anchors rather than fewer.

5. SAFETY PRECAUTIONS / DISCLAIMER

- 5.1 Read and follow the hazard information, precautions and first aid directions on the individual product labels and material safety data sheets before using. While all statements, technical information, and recommendations contained herein are based on information our company believes to be reliable, nothing contained herein shall constitute any warranty, express or implied, with respect to the products and/or services described herein and any such warranties are expressly disclaimed. We recommend that the prospective purchaser or user independently determine the suitability of our product(s) for their intended use. No statement, information or recommendation with respect to our products, whether contained herein or otherwise communicated, shall be legally binding upon us unless expressly set forth in a written agreement between us and the purchaser/user.
- 5.2 Please contact ErgonArmor for further questions or for specific recommendations at +1-601-933-3000.

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