



Engineering Standard

SAES-Q-010

22 August 2009

Cement Based, Non-Shrink Grout for Structural and Equipment Grouting

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1 Scope

- 1.1 This Standard covers the selection of fluid, cement based, nonshrink grout for use in equipment grouting and various structural applications. Epoxy grout for use in equipment grouting shall be in accordance with SAES-Q-011.
- 1.2 This specification defines the requirements for prepackaged, cement-based noncatalyzed nonmetallic aggregate grouts ready for use with the addition of water at the job site.

Commentary Note:

SAMS stock number 09-247-650-00 (SAP new material stock number 1000187870) or equal products that comply with the requirements of this standard can be used.

2 Conflicts and Deviations

- 2.1 Any conflicts between this standard and other applicable Saudi Aramco Engineering Standards (SAESs), Materials System Specifications (SAMSSs), Standard Drawings (SASDs), or industry standards, codes, and forms shall be resolved in writing by the company or buyer representative through the Manager, Consulting Services Department of Saudi Aramco, Dhahran.
- 2.2 Direct all requests to deviate from this standard in writing to the company or buyer representative, who shall follow internal company procedure SAEP-302 and forward such requests to the Manager, Consulting Services Department of Saudi Aramco, Dhahran.

3 References

The selection of material and equipment, and the design, construction, maintenance, and repair of equipment and facilities covered by this standard shall comply with the latest edition of the references listed below unless otherwise noted.

3.1 Saudi Aramco References

Saudi Aramco Engineering Procedure

SAEP-302

*Instructions for Obtaining a Waiver of a
Mandatory Saudi Aramco Engineering
Requirement*

Saudi Aramco Engineering Standards

SAES-Q-001

Criteria and Design of Concrete Structures

SAES-Q-011 *Epoxy Grout for Machinery Support*

Saudi Aramco Materials System Specification

09-SAMSS-088 *Aggregates for Concrete*

3.2 Industry Codes and Standards

American Society for Testing and Materials

ASTM C150 *Standard Specification for Portland Cement*

ASTM C309 *Standard Specification for Liquid Membrane
Forming Compounds for Curing Concrete*

Process Industry Practice

STS03600 (June 2002) *Nonshrink Cementitious Grout Specification*

4 **Modification to Process Industry Practice STS03600**

The following paragraph numbers refer to STS03600, which is part of this specification. The text in each paragraph is an addition, exception, modification, or deletion to STS03600 as noted. Paragraph numbers not appearing in STS03600 are new paragraph to be inserted in numerical order.

- 1.1 Delete this paragraph in its entirety.
- 2.1 Delete this paragraph in its entirety.
- 2.3 Delete this paragraph in its entirety.
- 4.2.1 (Addition) Minimum 28 days compressive strength shall be 34.5 MPA (5,000 psi).
- 5.1.2 (Addition) Grout shall be free of hydrogen gas producing, oxidizing catalysts and inorganic accelerators.
- 5.1.6 (Addition) Where true nonshrink characteristics are not mandatory, site mixed grout shall use clean well graded sand that meets the requirements of 09-SAMSS-088, Type V Portland cement (as defined by ASTM C150) and potable water. Minimum 28-day compressive strength shall be 13.8 MPA (2,000 psi).

Commentary Note:

This paragraph is intended for non-precision grouting such as structural backfill, masonry grout, masonry, hollow core block filler grout, and other applications where true nonshrink characteristics are not mandatory.

- 5.2 (Addition) Total dissolved solid for mixing and curing water shall not exceed 500 ppm.
- 6.1 (Addition) When type of grout is not specified by the equipment Manufacturer, cementitious grout shall be used for any of the following:
1. For rotating equipment that satisfies all of these requirements:
 - Driver horsepower less than 500 (373 kW).
 - 3600 RPM or less.
 - Combined weight of machine, driver, and base plate up to 2,270 kg (5,000 lbs).
 2. Grouting of structural base plates, anchor bolts, columns and precast members, i.e: wall panels, beams, etc.
- 6.2.7 (Addition) Reinforcing shall be in accordance with the manufacturer recommendations and SAES-Q-001.
- 6.3.9 (Addition) When the water/cement ratio is 0.4 or less, the grout shall be continuously water cured for a minimum of seven days. Curing compounds shall be in accordance with ASTM C309.

Revision Summary

22 August 2009

Revised the "Next Planned Update." Reaffirmed the contents of the document, and reissued with no other changes.