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Submitter Information

Name: Kenneth Whorlow

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General Comment

From Tutco Scientific Inc. Please see Document attached.

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Attachments

NRC Draft comments_Darla.N14

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From: Kenneth Whorlow
President – Tutco Scientific Inc.
Chairperson, ASTM C795, ASTM C692, & ASTM C871.
And Darla Stimbert – Analytical Chemist
714 East Aspen Ave
Fruita, Colorado, 81521

Dear NRC,

Thank you for the revision to NRC 1.36 and the opportunity to comment. These comments and suggestions are from Kenneth Whorlow and Darla Stimbert of Tutco Scientific Inc. and also include comments from members of ASTM C795 and interested parties.

Tutco Scientific has extensive knowledge and experience with NRC 1.36 as well as the referenced methods of ASTM C795, C692 and C871. Tutco Scientific was hired in 1997 by the NRC to produce NUREG/CR-6539, Effects of Fluoride and Other Halogen Ions on the External Stress Corrosion Cracking of Type 304 Austenetic Stainless Steel. Kenneth Whorlow is referenced in the NRC 1.36 draft document.

On October 23, 2014, we received an email informing us of this draft document and changes to NRC 1.36. We had previously contacted the ASTM liaison and the NRC in December of 2012 and had asked to be a part of this process given the ASTM methods referenced. We offered our extensive knowledge to the NRC. We were never contacted by the NRC. Once we received the email on October 23, 2014 we immediately started to draft then sent out an email (See page 4) to various ASTM C795 members and other interested parties asking for comments. (See page 5) We spoke with Rick Jervey on October 24, 2014 and had a lengthy discussion. We also spoke with David W. Alley on October 27, 2014. It was asked of us to comment as a body from ASTM C795. A copy of the email that was sent to the ASTM C795 members and interested parties, was sent to David Alley that same day as well.

The comments we have received agree that the removal of the +/- 50% requirement to the wording of 'statistically significant' is not a good idea, not clear, and has a great potential for abuse. The goal is make NRC 1.36 clear and useful to assure that you get the best materials. NRC 1.36 has been a little more strict with the +/-50% requirement than ASTM C795. ASTM C795 doesn't have that same criteria to assure those better materials. We feel NRC 1.36 needs to stay with the 50% requirement to prevent potentially marginal materials from being introduced into these sensitive systems.

I asked both Mr. Jervey and Mr. Alley on the phone what exactly 'statistically significant' meant and how would a person comply with such a statement when a pre-production sample is one chemical test? Neither of them was able to answer my question. The +/-50% is a clear line that has been established for many years and has served the NRC well. We, nor the people that have commented, feel there's a need to change it to a vague clause. Over the years +/- 50% has been a good indicator for manufacturers and gives them the ability for good quality control. In addition, industry consensus is that a manufacturer shouldn't be out of compliance for having less chloride + fluoride or more sodium + silicate because this represents a product improvement in regard to corrosion. Changes greater than 50% usually indicate a change in the type, nature, or quality of the ingredients and would require re-qualification anyway.

We do feel there's a need to expand on +/-50% since we feel that a manufacturer shouldn't fail a particular manufacturing run when they make product improvements, ie: lower chloride + fluoride

or higher sodium + silicate. This can happen in the case of a material that had very low chloride + fluoride when the pre-production testing was done and then the company manufactures something that's even lower. An example would be of a pre-production result of 12 chloride + fluoride and a manufacturing run of 5 chloride + fluoride. This would fall outside of the +/-50% range as it's written. Obviously it's better given a lower chloride + fluoride result shouldn't cause more corrosion. We've addressed this issue in full in our comments below and hope that you'll utilize this clear wording for NRC 1.36 instead of "statistically significant" that honestly means nothing without a great deal more explanation.

C795 Section 11.1 states: "All specimens in a lot sampling shall meet the chemical requirements of this specification. If the average analysis of the two specimens taken from any sample fails to conform to the requirements of this specification, the lot represented by that sample shall be rejected." We feel the NRC 1.36 should emphasize the samples shall be done in duplicate for the chemical analysis portions of the tests.

Our comments to the document as a whole are:

- Please consider the use of shall instead of should throughout the document as is the current guidance for ASTM C16 documents regarding the use of permissive language.

Section C. Staff Regulatory Guidance

- The subsections are incorrectly numbered. Revise to 1. 2. and 3.

2a) Preproduction corrosion testing

- Please consider moving the last sentence requiring the C692 stress corrosion test to the first sentence to emphasize that the preproduction corrosion testing requires the C692 test. We'd like to see the change to:

Each material shall be tested for stress corrosion effects using the 28-day stress corrosion test as specified in ASTM C692 to determine acceptability using the criteria of ASTM C795. Duplicate specimens of each type of thermal insulating material used shall be chemically analyzed using the test method ASTM C871 to determine leachable chloride, fluoride, sodium, silicate and pH, sufficient to meet the acceptance criteria of ASTM C795, figure 1 and to establish baseline values for confirming production quality control.

2b) Production testing

The Draft document defines the term lot (batch) in footnote 2 on page 3, when the term is first used. In section 2b "Production testing" the term is repeated. Please consider a reference back to footnote 2, [Each lot (see footnote 2) of insulation material...] to provide additional clarity as to the determination of a lot.

There's a change from the + / - 50% criteria in the original document to: "The results should be statistically compared to the qualification results for any statistically significant variation to assure acceptability of the product".

- Please consider Section C2b be changed to:

b) Production testing

Duplicate specimens from each lot (see footnote 2) of insulation shall be chemically analyzed as required by ASTM C795 to determine leachable chloride, fluoride, sodium, silicate and pH. The material shall meet the acceptance criteria of ASTM C795, figure 1. Using the averaged results from the duplicate specimens for each lot, the chloride plus fluoride ion concentrations shall not

exceed + 50%, and the sodium plus silicate ion concentrations shall not be less than - 50%, from the averaged values used to qualify the insulation on the preproduction corrosion testing (2a).

OR

An alternative wording for complete clarity:

b) Production testing

Duplicate specimens from each lot (see footnote 2) of insulation shall be chemically analyzed as required by ASTM C795 to determine leachable chloride, fluoride, sodium, silicate and pH. The material shall meet the acceptance criteria of ASTM C795, figure 1 using the averaged results from the duplicate specimens for each lot.

For each lot chemical analysis, the chloride plus fluoride ion concentrations shall not deviate by more than +50% of the average values determined on the sample used to qualify the insulation. It is permitted for the chloride plus fluoride ion concentrations to be less than -50% of the average values determined on the sample used to qualify the insulation.

For each lot chemical analysis, the sodium plus silicate ion concentrations shall not deviate by less than -50% of the average values determined on the sample used to qualify the insulation. It is permitted for the sodium plus silicate ion concentrations to be more than +50% of the average values determined on the sample used to qualify the insulation.

- Under section Requalification - Please consider changing: ...re-qualified by repeating the qualification testing; to ...re-qualified by repeating the preproduction corrosion testing (2a). This will emphasize that the C692 corrosion test is necessary on the "new" material. Please consider changing it to read:

3. Requalification. When a change is made in the type, nature, or quality of the ingredients, the formulation, or the manufacturing process, the insulation material shall be re-qualified by repeating the preproduction corrosion testing (2a).

- Please also consider adding – Manufacturers shall perform periodic requalification in accordance with the manufacturer's production quality program. (Most currently do this every 2-3 years.)
- REFERENCES: Item 4 ASTM C 795-08 (change the word Reaffirmed 2013 to Reapproved)

Sincerely,
Kenneth Whorlow & Darla Stimbert
Tutco Scientific Inc.

With consideration and comments from ASTM C795 members and interested parties.

The following is the email sent out by Tutco Scientific to various C795 members and interested parties on October 24, 2012.

Dear ASTM C795 Members & interested parties,

The NRC is in the process of updating RG NRC 1.36. It hasn't been updated since 1973. They are heavily referencing ASTM C795 for the qualification criteria.

They are bringing their regulations more inline with the standards community. We were asked by the NRC to submit comments as a body instead of individual comments. Unfortunately, we just became aware of this and the comment period ends on November 5, 2014.

The major changes we see are:

1) The removal of a date for the ASTM methods mentioned. We feel this is a good thing as they last referenced ASTM documents from ~ 1971. This allows their documents to stay current with the current ASTM documents.

2) There's a change from the +/- 50% criteria in Section C 3. b) to: " The results should be statistically compared to the qualification results for any statistically significant variation to assure acceptability of the product"

We feel that the verbiage of 'statistically significant' is vague. We have always also felt that a manufacturer shouldn't be out of compliance for having less chloride + fluoride or more sodium + silicate. Over the years though the +/- 50% has been a pretty good indicator for manufacturers and gives the ability for good quality control. Changes greater than that usually indicate a change in the type, nature, or quality of the ingredients and would require re-qualification anyway.

We propose Section C 3. b be changed to:

b) Production testing

Each lot of insulation shall be chemically analyzed as required by ASTM C795 to determine leachable chloride, fluoride, sodium and silicate. The material shall meet the acceptance criteria of ASTM C795, figure 1. For each lot chemical analysis, the chloride plus fluoride ion concentrations shall not exceed 50% and the sodium plus silicate ion concentrations shall not be less than 50% from the values determined on the sample used to qualify the insulation.

Our only other comment is the use of shall instead of should throughout the document as is the current guidance for C16 ASTM methods.

We realize this is short notice but we'd greatly appreciate if you take the time to comment to us on the new document so we can include the comments to the NRC as a body per their request. Individual comments of course can be made if you want to make your own comments directly to them.

The document title is: "Draft Regulatory Guide 1312, "Nonmetallic Thermal Insulation for Austenitic Stainless Steel".
The link to the document is: <http://www.nrc.gov/reading-rm/adams.html> and search for ML14079A669.

The link for comments if you want to make them separately is: <http://www.regulations.gov/#!documentDetail;D=NRC-2014-0209-0001>

We greatly appreciate any comments or suggestions you may have,

Sincerely,
Kenneth Whorlow
Tutco Scientific Inc.
714 E. Aspen Ave
Fruita, CO 81521
Ph& Fax 970-858-3584
tutco@bresnan.net

The following comments were sent to us by ASTM C795 members and other interested parties concerning the above email. We have addressed all of these comments with the suggested wording we are submitting.

1) Ken,

Below I have listed PCI input from PCI personnel (Gregg Hunter/Eric Cox):

Per Gregg Hunter (Technical Services Manager):

Industry should require Stress Corrosion testing every 5 years. Too often the time periods are well past 10 or more years. The standard's language should also be more explicit, and distinctly require that both the Stress Corrosion and Lot/Sample Testing are completed, compared, and found to be within the 50% region prior to a manufacturer or supplier being able to certify material is fully compliant to RG 1.36.

Eric Cox (Quality Assurance Manager):

The words "statistically significant" may sound innocent enough, but to personnel that are fluent with statistical analysis and analytical tools they are far from it. It needs to be understood that a sample of data can be statistically significant, yet have no practical value when compared to the process or data itself. Consequently, a difference within a data group can be found to be statistically significant with nothing actually resulting from the process other than a larger sample size having been taken. Those two words "statistically significant" are insufficient at best, and burdensome (with minimal value added) at worst. Regardless, the wording needs to be clarified with explicit guidance with respect to the sampling practice required, or removed altogether in order to prevent yet another misguided, misinterpreted regulatory requirement.

Thank you for allowing us to provide some input, we do appreciate it!

Best regards,

Eric Cox

PCI ESG Quality Manager
Phone: 913-928-2840
Fax: 913-928-2940

2) Ken,

I agree with your position.
Bill Edmunds

3) Regarding use of the term "Lot" in 2b, *Production Testing* below, I believe this term itself is too vague. We struggle with this term internally as we often refer to lot as a single roll, whereas some manufacturers use the term to describe orders of magnitude more material. Ideally, the term lot would be defined and specific changes requiring requalification clearly defined.

Alan S. Woodman

Director, Quality and Continuous Improvement
Aspen Aerogels, Inc.

4) Ken, I agree with your recommendations 100%.
Jeremy Haslam

5) Ken,

I generally agree with your suggestions, with the following comments:

On point #2, it would be good to define "statistically significant" in terms of the P&B/uncertainty of the test method if possible, since as it is their definition is vague. The alternative you propose is also an option, though I think it needs rewording to clarify:

"For each lot chemical analysis, the chloride plus fluoride ion concentrations shall not exceed 50% be greater than 150% and the sodium plus silicate ion concentrations shall not be less than 50% from of the values determined on the sample used to qualify the insulation. "

Rick L. Dolin
Technical Manager
Industrial Insulation Group, LLC

6) Ken / Darla,

To statistically compare the results of production testing to the results of qualification testing without a specific statistical requirement is not a standard that ensures safety or quality. Statistically significant variations can mean anything, but unfortunately, means nothing.

We would hope that the highest degree of safety and performance will be enforced by this latest revision and would agree that the chloride plus fluoride ion concentrations not exceed 50% and the sodium plus silicate ion concentrations not be less than 50% from the values determined on the sample used to qualify the insulation.

Bob Hubinger
QA Manager
Claremont Corp.

7) A few phone calls and discussions with other people in the industry have agreed that the +/- 50% is and has been a good indicator for quality control and production. They've also all agreed about the lower chloride / fluoride and higher sodium silicate addition. They didn't write specifically but contacted us by phone instead to comment.