

## Allen, William

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**From:** Michael.Conroy@dot.gov  
**Sent:** Tuesday, March 24, 2015 9:59 AM  
**To:** Allen, William  
**Subject:** FW: TNBGC1 Request for uranium metallic powder  
**Attachments:** Pyrophoric Testing.pdf

More info from Areva on testing for TN-BGC1 new contents.

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**From:** GALLAIS Gregory (AREVA) [<mailto:gregory.gallais@areva.com>]  
**Sent:** Monday, March 23, 2015 11:46 AM  
**To:** Conroy, Michael (PHMSA)  
**Cc:** MALHAIRE Jean-Francois (AREVA); LE BLEVENNEC Renaud (AREVA); GUIBERT Nicolas (AREVA); BOUYER Emilie (AREVA)  
**Subject:** RE: TNBGC1 Request for uranium metallic powder

Dear Mr Conroy,

Please, find below and attached the additional data on the tests to be carried out to demonstrate the non-pyrophoricity of ANL powder :

Testing will be performed by the Argonne Analytical Chemistry Laboratory, using samples from the coated materials produced for the initial shipments.

The testing will be performed in accordance with the 5<sup>th</sup> Edition of the United Nations Recommendations on the Transport Of Dangerous Goods, Manual of Tests and Criteria, Section 33, 33.3.1.3 Classification procedure for substances liable to spontaneous combustion; subsection 33.3.1.3.1 Pyrophoric Solids; and using the method described in 33.3.1.4 **Test N.2**; Test method for pyrophoric solids.

The testing protocol is attached.

Do not hesitate to contact me if needed.

Regards,

**Grégory GALLAIS**

Design Manager – Special Material Engineering Unit

**Phone :** (+33) 1 34 96 53 81 | **Fax :** (+33) 1 34 96 54 56 | **Email :** [gregory.gallais@areva.com](mailto:gregory.gallais@areva.com)

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**De :** GALLAIS Gregory (BE/LO)

**Envoyé :** vendredi 20 mars 2015 11:24

**À :** 'Michael.Conroy@dot.gov'

**Cc :** MALHAIRE Jean-Francois (BE/LO); LE BLEVENNEC Renaud (BE/LO); GUIBERT Nicolas (BE/TN); BOUYER Emilie (BE/LO)

**Objet :** RE: TNBGC1 Request for uranium metallic powder

Dear Mr Conroy,

Please, find below the additional information requested in your last e-mail.

Chemical form of material to be shipped :

ANL informed us that the material to be shipped is UMo metallic powder with a ceramic coating enriched to less than 20%.

Specify content to be used

It would be shipped under the content 11d (although it could also fit into the content 11e or 11f depending on the type of spacer used, we consider by default that it would fit into the content 11d).

Details on the test to be carried out

The test is UN Manual of Tests and Criteria 33.3.1 as specified in per 49CFR173.124, IATA 3.4.2, ICAO 4.3.

We are expecting this test to be properly documented. We have asked ANL to provide more information regarding the test so that we could forward these information to you.

Should you need further information, do not hesitate to contact me.

Cordialement,

**Grégory GALLAIS**

Responsable Etudes – Section Etudes Matières Spéciales

Design Manager – Special Material Engineering Unit

**Phone** : (+33) 1 34 96 53 81 | **Fax** : (+33) 1 34 96 54 56 | **Email** : [gregory.gallais@areva.com](mailto:gregory.gallais@areva.com)

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**De** : [Michael.Conroy@dot.gov](mailto:Michael.Conroy@dot.gov) [<mailto:Michael.Conroy@dot.gov>]

**Envoyé** : mercredi 18 mars 2015 17:29

**À** : GALLAIS Gregory (BE/LO)

**Objet** : RE: TNBGC1 Request for uranium metallic powder

Grégory,

Your February 23<sup>rd</sup> letter (attached) requests that we add “non-pyrophoric uranium metallic powder” as authorized contents under Content no. 11 of our USA Certificate of Approval No. USA/0492/B(U)F-96.

Your letter notes that this is requested to permit non-pyrophoric metallic powder from Argonne National Laboratory to be shipped to France, tentatively scheduled for July 2015.

Can you provide additional information on the material to be shipped?

In particular, does it fit under content 11 (d), (e), or (f) as specified in the French certificate?

What chemical form(s) will the material be in?

Can you provide more details on the testing that will be done to establish the material is non-pyrophoric?

Michael Conroy

Sciences Branch / Division of Engineering and Research / Office of Hazardous Materials Safety

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33.3.1.4 *Test N.2: Test method for pyrophoric solids*

33.3.1.4.1 Introduction

The ability of a solid to ignite on contact with air is tested by exposure to air and determining the time to ignition.

33.3.1.4.2 Apparatus and materials

No special laboratory equipment is required.

33.3.1.4.3 Procedure

One to two ml of the powdery substance to be tested should be poured from about 1 m height onto a non-combustible surface and it is observed whether the substance ignites during dropping or within 5 minutes of settling. This procedure should be performed six times unless a positive result is obtained earlier.

33.3.1.4.4 Test criteria and method of assessing results

If the sample ignites in one of the tests, the substance should be considered pyrophoric and should be classified in packing group I of Division 4.2.

33.3.1.4.5 Examples of results

<b>Substance</b>	<b>Time to ignition (s)</b>	<b>Result</b>
Manganese ethylene bis (dithiocarbamate) complex with zinc salt 88% (Mancozeb)	No ignition within 5 minutes	Not PG I of 4.2
Manganese ethylene bis (dithiocarbamate) complex with zinc salt 80% (Mancozeb)	No ignition within 5 minutes	Not PG I of 4.2
Manganese ethylene bis (dithiocarbamate) complex with zinc salt 75% (Mancozeb)	No ignition within 5 minutes	Not PG I of 4.2