



U.S. Department  
of Transportation

**Pipeline and Hazardous  
Materials Safety  
Administration**

1200 New Jersey Avenue, SE  
Washington, D.C. 20590

JUL 18 2016

Mr. John Williams  
Director of HSE  
US Zinc  
2727 Allen Parkway, Suite 800  
Houston, TX 77019

Ref. No.: 16-0037

This is in response to your email dated March 1, 2016, concerning the applicability of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) to the transportation of zinc dust that does not meet the test criteria for Division 4.3.

Depending on the properties of the material, zinc dust may be described, as appropriate, as "UN1436, Zinc powder *or* Zinc dust, 4.3, PG I, II or III", "UN3077, Environmentally hazardous substance, solid, n.o.s., 9, PG III", or as not regulated. The test method and criteria for classifying a material as Division 4.3 are contained in § 173.124(c). If the material evolves flammable or toxic gases when in contact with water, to the extent that it meets the prescribed criteria it would be classed as Division 4.3. Based on the test results you submitted on zinc dust, we agree that this particular tested material does not meet the Division 4.3 criteria.

Based on the data you provided, the diameter of the zinc particles is less than 100 micrometers (0.004 inches), if the quantity in one package, or transport vehicle if not packaged, equals or exceeds 1000 pounds (the reportable quantity for zinc listed in Appendix A to § 172.101), the material would be regulated as a hazardous substance (see § 171.8). If the material does not equal or exceed the reportable quantity and does not meet the criteria for any other hazard class or division then it is not subject to the HMR.

I hope this answers your inquiry. If you need additional assistance, please contact the Standards and Rulemaking Division at (202) 366-8553.

Sincerely,

Duane A. Pfund  
International Standards Coordinator  
Standards and Rulemaking Division

**Dodd, Alice (PHMSA)**

heavy  
\$171,180  
HMT  
16-0037

**From:** Goodall, Shante CTR (PHMSA)  
**Sent:** Tuesday, March 01, 2016 1:31 PM  
**To:** Dodd, Alice (PHMSA)  
**Subject:** FW: Zinc dusts as Hazardous Materials  
**Attachments:** Zinc Dust Analysis Data 160210.pdf; 80303 U S Zinc Dust flamability test.pdf; DOT exempt letter from 172 table for Dust haz if pass Divn 4 testing.pdf

Please log in

**From:** Betts, Charles (PHMSA)  
**Sent:** Tuesday, March 01, 2016 12:48 PM  
**To:** Goodall, Shante CTR (PHMSA)  
**Subject:** FW: Zinc dusts as Hazardous Materials

Please log and assign for response.

**From:** John Williams [<mailto:john.williams@uszinc.com>]  
**Sent:** Tuesday, March 01, 2016 12:44 PM  
**To:** Betts, Charles (PHMSA)  
**Subject:** RE: Zinc dusts as Hazardous Materials

20 density  
7.149/cm<sup>3</sup>

US Zinc is requesting a Letter of Interpretation clarifying for ourselves and transport companies that the Zinc Dust we package in containers (bags, cans, FIBC, etc) all under 1000 lbs should not be classified as "Zinc Dust, 4.3 UN1436" and DO NOT meet the requirements of HMR 49 CFR 171-180 as Hazardous materials. Enclosed is analysis of our dust showing typical particle size distribution and chemical composition. Also enclosed is the most current flammability testing showing that our materials should be considered non-flammable solids as per Division 4.2 & 4.3 of 49CFR173. The zinc dust is transported in FIBC super sacks under 1000 pounds and at times in 5 gallon cans and buckets.

Your Letter of interpretation will be very helpful in explaining the DOT position on shipping this material in the USA.

Sincerely,

John Williams  
Director of HSE  
US Zinc

**From:** [lad.falat@dot.gov](mailto:lad.falat@dot.gov) [<mailto:lad.falat@dot.gov>]  
**Sent:** Wednesday, January 20, 2016 7:37 AM  
**To:** John Williams <[john.williams@uszinc.com](mailto:john.williams@uszinc.com)>  
**Cc:** Benjamin Davis <[Benjamin.Davis@uszinc.com](mailto:Benjamin.Davis@uszinc.com)>; [rachel.meidl@dot.gov](mailto:rachel.meidl@dot.gov); [charles.betts@dot.gov](mailto:charles.betts@dot.gov)  
**Subject:** RE: Zinc dusts as Hazardous Materials

Dear Mr. Williams,

It does indeed appear that you could use a more recent Letter of Interpretation. In order to ensure that the regulations have not changed over the last 23 years regarding your material, I recommend a PHMSA technical review of the current

HMR regarding the material. Please submit by email a request for a Letter of Interpretation to Charles Betts ([Charles.Betts@dot.gov](mailto:Charles.Betts@dot.gov)), PHMSA Director of Standards and Rulemaking, describing your material in detail, including particle size distribution, relevant testing, and method and size of packaging (weight of contents). Please include documents that you attached here originally, as well as your specific questions regarding sections of the HMR. Your previous Letter of Interpretation should expedite the process.

Best Regards,

Lad Falat, Ph.D.  
Director, Engineering and Research  
U. S. DOT / PHMSA / Office of HazMat Safety  
PHH-20 / E21-314  
1200 New Jersey Avenue, SE  
Washington, DC 20590-0001  
202-366-1655

**From:** John Williams [<mailto:john.williams@uszinc.com>]  
**Sent:** Friday, January 15, 2016 1:35 PM  
**To:** Meidl, Rachel (PHMSA); Falat, Lad (PHMSA)  
**Cc:** Benjamin Davis  
**Subject:** Zinc dusts as Hazardous Materials  
**Importance:** High

Ms. Meidl & Mr. Falat,

An issue comes up on a continuing basis with regards to the zinc dust we transport both within the USA and internationally. We have previously had our products tested and have done so again (see attached). Our tests prove that our tested dusts do not liberate hydrogen gas when in contact with water, thus should not be classified as "Zinc Dust, 4.3 UN1436", nor does the particle size of our materials (less than 100 micrometer (0.004 inches)) nor the size of our packages less than 1000 lbs per package, meet the requirements of HMR 49 CFR 171-180.

We have an attached letter that we have been handing out to truck drivers to allay the fears they have of being stopped and cited for transporting HMR, but some of them are looking for a more recent letter if one could be provided. Also, our shipments to International ports come under scrutiny for the same reason, so such a letter would certainly assist port inspectors to better understand our product and where they fit in the transport segment.

I appreciate any assistance you can lend in this matter.

Best Regards,

John Williams  
Director of HSE  
[john.williams@uszinc.com](mailto:john.williams@uszinc.com)

Office - 281-840-5376  
Mobile - 713-775-9163



"This message and its attachments may contain confidential and/or privileged information.

If you are not the addressee, please, advise the sender immediately by replying to the e-mail and delete this message."

"Este mensaje y sus anexos pueden contener información confidencial o privilegiada. Si ha recibido este e-mail por error por favor bórralo y envíe un mensaje al remitente."

"Esta mensagem e seus anexos podem conter informação confidencial ou privilegiada. Caso não seja o destinatário, solicitamos a imediata notificação ao remetente e exclusão da mensagem."

"This message and its attachments may contain confidential and/or privileged information. If you are not the addressee, please, advise the sender immediately by replying to the e-mail and delete this message."

"Este mensaje y sus anexos pueden contener información confidencial o privilegiada. Si ha recibido este e-mail por error por favor bórralo y envíe un mensaje al remitente."

"Esta mensagem e seus anexos podem conter informação confidencial ou privilegiada. Caso não seja o destinatário, solicitamos a imediata notificação ao remetente e exclusão da mensagem."



0.0041 inches  
= 140 Mesh  
= 105 microns

**Zinc Dust Typical Properties (actual product analysis)**

Lot#	Zinc		Trace Impurity Composition			Bulk Screening (% of total)			Fischer #
	Total Zn %	Metallic %	Pb%	Cd%	Fe%	+100 Mesh	+200 Mesh	+325 Mesh	
601149	99.21	96.28	0.049	0.009	0.003	0.00	0.00	2.00	5.5
601128	99.25	96.48	0.045	0.008	0.001	0.00	0.02	3.23	5.6
Methods	ASTM D521	In-House	ASTM D521			ASTM B214			ASTM B330

44 microns

100% < .0041 inches

98% smaller than 44 microns

**Particle Size Distribution Data (See Note 1)**

Lot#	Cumulative % of total					Statistical Measures (microns)		
	< 2 µm	< 5 µm	< 10 µm	< 30 µm	< 60 µm	D10	D50	D90
601149	0.9%	23.3%	60.2%	93.3%	99.3%	3.6	8.2	24.4
601128	1.9%	23.1%	62.5%	93.4%	98.5%	3.6	8.1	22.2

44 µm 98%

Note 1: Particle size distribution data presented in this section was determined using the manufacturers recommended settings using a Malvern dry-feed laser diffraction particle sizer. This test does not correspond with an ASTM spec for Zinc Dust.

The information contained herein has been compiled to the best of US Zinc's knowledge, but is presented without any obligation.

US Zinc assumes no liability for infringement of any patent which may result from the use of this information or products.

**Office :** U.S. ZINC  
2727 Allen Parkway  
Suite 800  
Houston, Texas 77019

**Tel:** (713) 926-1705  
**Fax:** (713) 924-4824  
**email:** dustinfo@uszinc.com  
**web site:** www.uszinc.com

(PDS-PS-ZnDust)

Review date 02102016 by BLD

Revision 7

# Certificate of Analysis



SINCE 1985

*Quality Controlled Through Analysis*

10630 FALLSTONE RD. HOUSTON, TEXAS 77099  
P.O. BOX 741905, HOUSTON, TEXAS 77274

TEL: (281) 495-2400  
FAX: (281) 495-2410

CLIENT:	U.S. Zinc	REQUESTED BY:	Mr. Gari Stinson
CLIENT PROJECT:		PURCHASE ORDER NO:	PENDING
LABORATORY NO:	80303-001	REPORT DATE:	December 04, 2015
SAMPLE:	Baghouse Dust BH11-100615		

**TEST**

**RESULT**

**Testing according to CFR Title 49, Sub Chapter C,  
Appendix E to part 173- Guidelines for Classification and Packing Group (United Nations)**

Assigned of Class 4 Materials:

**4.) Division 4.2**

Materials liable to Spontaneous Combustion:

**a) Pyrophoric materials**

Material does not ignite after dropping or within 5 minutes of settling:  
Material classifies as non-pyrophoric solid.

**a) Self Heating Materials**

Solid Material placed in circulating oven @140 °C for 24 hours:

No spontaneous ignition occurred and the temperature of the sample remained constant.  
Solid material classifies as non-self heating materials.

This material is therefore considered non-flammable Solids (Under Division 4.2)

**Testing according to CFR Title 49, Sub Chapter C,  
Appendix E to part 173- Guidelines for the Classification and Packing Group (United Nations)**

Assigned of Class 4 Materials:

**4.) Division 4.3**

Dangerous when wet material:

**a) Solid material was grounded into a powder form.**

- 1.) Sample was placed in a trough of distilled water @ 20 °C:  
No gases evolved and no spontaneous ignition occurred.
- 2.) Small quantity of sample was placed in the center of the filter paper which is floated flat on surface of distilled water @ 20°C in a evaporating dish:  
No gases evolved and no spontaneous ignition occurred.
- 3.) Material is made in to a 2 cm pile and a drop of water is place on the top:  
No gases evolved and no spontaneous ignition occurred.
- 4.) Water placed in a dropping funnel with enough material to produce 100 mL of gas.  
The Volume of the gas evolved is measured over a 7 hour period @ 1 hour intervals ✓  
No gases evolved and no spontaneous ignition occurred.

This material is therefore considered non-flammable Solids (Under-Division 4.3)

Respectfully submitted  
For Texas OilTech Laboratories, L.P.

A. Phillip Scrurbakhsh  
Director of Laboratory Operations

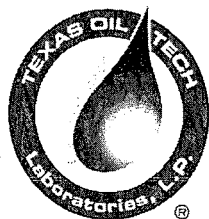
Cert. No.: 0005085, 17025

Quality Management System Certified to ISO 9001:2008, and ISO 17025:2005

These analyses, opinions or interpretations are based on material supplied by the client to whom, and for whose exclusive and confidential use this report is made. Results related only to the items tested. Texas OilTech Laboratories, L.P. and its officers assume no responsibility and make no warranty for proper operations of any petroleum, oil, gas or any other material in connection with which this report is used or relied on. This report may not be reproduced, except in full without prior written approval by Texas OilTech Laboratories, L.P.



# Certificate of Analysis



SINCE 1985

*Quality Controlled Through Analysis*

10630 FALLSTONE RD. HOUSTON, TEXAS 77099  
P.O. BOX 741905, HOUSTON, TEXAS 77274

TEL: (281) 495-2400  
FAX: (281) 495-2410

CLIENT:	U.S. Zinc	REQUESTED BY:	Mr. Gari Stinson
CLIENT PROJECT:		PURCHASE ORDER NO:	PENDING
LABORATORY NO:	80303-002	REPORT DATE:	December 04, 2015
SAMPLE:	Baghouse Dust BH19-100615		

**TEST**

**RESULT**

**Testing according to CFR Title 49, Sub Chapter C,  
Appendix E to part 173- Guidelines for Classification and Packing Group (United Nations)**

Assigned of Class 4 Materials:

4.) Division 4.2  
Materials liable to Spontaneous Combustion:

a) Pyrophoric materials  
Material does not ignite after dropping or within 5 minutes of settling.  
Material classifies as non-pyrophoric solid.

a) Self Heating Materials  
Solid Material placed in circulating oven @140 °C for 24 hours:  
No spontaneous ignition occurred and the temperature of the sample remained constant.  
Solid material classifies as non-self heating materials.

This material is therefore considered non-flammable Solids (Under Division 4.2)

**Testing according to CFR Title 49, Sub Chapter C,  
Appendix E to part 173- Guidelines for the Classification and Packing Group (United Nations)**

Assigned of Class 4 Materials:

4.) Division 4.3  
Dangerous when wet material:

a) Solid material was grounded into a powder form.

5.) Sample was placed in a trough of distilled water @ 20 °C:  
No gases evolved and no spontaneous ignition occurred.

6.) Small quantity of sample was placed in the center of the filter paper which is floated flat on surface of distilled water @ 20°C in a evaporating dish:  
No gases evolved and no spontaneous ignition occurred.

7.) Material is made in to a 2 cm pile and a drop of water is place on the top:  
No gases evolved and no spontaneous ignition occurred.

8.) Water placed in a dropping funnel with enough material to produce 100 mL of gas.  
The Volume of the gas evolved is measured over a 7 hour period @ 1 hour intervals  
No gases evolved and no spontaneous ignition occurred.

This material is therefore considered non-flammable Solids (Under-Division 4.3)

Respectfully submitted  
For Texas OilTech Laboratories, L.P.

A. Phillip Sorurbakhsh  
Director of Laboratory Operations

Cert. No.: 0005085, 17025

Quality Management System Certified to ISO 9001:2008, and ISO 17025:2005

These analyses, opinions or interpretations are based on material supplied by the client to whom, and for whose exclusive and confidential use this report is made. Results related only to the items tested. Texas OilTech Laboratories, L.P. and its officers assume no responsibility and make no warranty for proper operations of any petroleum, oil, gas or any other material in connection with which this report is used or relied on. This report may not be reproduced, except in full without prior written approval by Texas OilTech Laboratories, L.P.





U.S. Department  
of Transportation  
  
Research and  
Special Programs  
Administration

400 Seventh Street, S.W.  
Washington, D.C. 20590

JUN 2 1993

Mr. Richard Gunther  
Environmental Engineer  
U.S. Zinc  
P.O. Box 611  
Houston, TX 77001-0611

Dear Mr. Gunther:

This is in response to your letter dated January 19, 1993, concerning the applicability of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) to the transportation of zinc dust that does not meet the test criteria for Division 4.3.

Depending on the properties of the material, zinc dust may be described, as appropriate, as "Zinc dust, 4.3, UN1436", "Environmentally hazardous substance, solid, n.o.s., 9, UN3077, PG III", or as not regulated. The test method and criteria for classifying a material as Division 4.3 are contained in 49 CFR Part 173, Appendix E, paragraph 4. If your material liberates hydrogen gas when in contact with water, to the extent that it meets the prescribed criteria, it would be classed as Division 4.3. Based on the test results you submitted on zinc dust, we agree that this particular tested material does not meet the Division 4.3 criteria.

If the diameter of the zinc particles is less than 100 micrometers (0.004 inches) and the quantity in one package, or transport vehicle if not packaged, equals or exceeds 1000 pounds, the material is a hazardous substance. If your material meets neither criteria, then it is not subject to the HMR.

If we can be of further assistance, please contact us.

Sincerely,

Hattie L. Mitchell  
Exemptions and Regulations Termination  
Office of Hazardous Materials Standards