SAFETY CONSULTING ENGINEERS, INC.
A DEKRA Company
2131 Hammond Drive
Schaumburg, Illinois 60173
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9180 W. White Eagle Rd
Forreston, IL 61030
815-938-2578

TRANSPORATION CLASSIFICATION REPORT

9/15/2014 **No. 1077-2014206**

Ammonia Nitrate Additives, LLC
1020 Highland Parkway
Jasper, GA 30143

Attention: Mr. Michael Fritz
770 712 7281

TITLE: Recommended Shipping Classification for Ammonium Nitrate / Oil Shale Blend

References: SCE "Explosives Classification Report" No. 2014206-LR, dated 9/15/2014

The recommended shipping name, classification, UN number and packing group for the Ammonium Nitrate / Oil Shale Blend are:

Oxidizing solid, n.o.s. (Ammonium nitrate, oil shale); 5.1; PG-III; UN1479

This recommendation IS NOT package dependent.

To complete the approval process and receive an EX number for this material and location:

1. Provide a cover letter requesting classification in accordance with 49 CFR, Section 107.705.
2. Submit your cover letter, along with this Classification Recommendation Letter and the above referenced report to:
   Online: http://www.phmsa.dot.gov/hazmat/e-services
   (online system use is the application method preferred by the US DOT)

If you have any questions concerning this report or require further assistance, please call.

Examination by:

Graham Walsh, Ph.D.
Senior Explosives Engineer, SCE
DOT Examiner

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9/15/2014

CA 2010040008

EXPLOSIVE CLASSIFICATION TEST REPORT

Title: **Testing and Recommendation for Ammonium Nitrate / Oil Shale Blend**
Report No.: **2014206-LR**
SCE No.: **1077**
Examiner: **Graham Walsh**

Ammonia Nitrate Additives, LLC
1020 Highland Parkway
Jasper, GA 30143

Attention: Mr. Michael Fritz
770 712 7281

This report covers testing on the substance identified as:

Ammonium Nitrate / Oil Shale Blend

Submitted for testing and analysis by: Ammonia Nitrate Additives, LLC

1.0 Recommended UN Classification

Recommended UN Classification for the above substance according to 49 CFR Parts 100-185 - Transportation:

a. Proper shipping name: Oxidizing solid, n.o.s. (Ammonium nitrate, oil shale)
b. UN Identification Number: UN1479
c. Hazard Class: 5.1
d. Packing Group: III

2.0 Method of Examination: TESTING

3.0 Test Location:

Testing was performed on 9/15/2014 at SCE Facilities in Forreston, IL.

4.0 Product Description:

The substance tested was a mixture of 75% Ammonium Nitrate prill (technical grade) and 25% oil shale. The oil shale was added to the Ammonium Nitrate as a density modifier and an extender. The purpose of this testing was to evaluate the explosivity of the mixed Ammonium Nitrate / Oil Shale material.

This material is not to be used as an explosive / blasting agent on its own, it will be mixed with a fuel prior to loading into boreholes and then used as an explosive for blasting operations.

5.0 Maximum Parameters of Design Type

No drawing was submitted for review.

6.0 Packaging Tested:

The substance was tested unpackaged.

7.0 Test Description (UN Manual of Tests and Criteria, 5th revised edition)

7.1 UN Test 1(a): UN gap test

The result of this test was positive. The witness plate was domed but whole; however the substance propagated a detonation as evidenced by the fragmentation of the entire confining pipe. This test was performed once, as the first trial gave a positive reaction. This result is consistent with Ammonium Nitrate prill, as listed in Section 11.4.1.5 of the UN Manual of Tests and Criteria, 5th revised edition.

7.2 UN Test 1(b): Koenen test

The result of this test was negative. The substance has a limiting diameter of less than 1.0-mm. In three trials at 1.0-mm, the tested substance exhibited reactions of "E", "D" and "A". This performance exceeds that of Ammonium Nitrate Prill, as shown in Section 11.5.1.5 of the UN Manual of Tests and Criteria, 5th revised edition.

7.3 UN Test 1(c)(i): Time/Pressure Test

The result of this test was negative. The substance, tested as received, did not achieve a pressure of 2,070 kPa in any of the three trials conducted. This is consistent with the Ammonium Nitrate prills referenced in Section 11.6.1.5 of the UN Manual of Tests and Criteria, 5th revised edition.

7.4 UN Test 2(a): UN gap test:

The result of this test was negative. There was no fragmentation of the tube in either of the two trials conducted. After each trial there was compacted, but unreacted substance in the bottom of the test article. There was no damage to the witness plate. The mass of the substance tested was 1.0-lb in both trials. This substance shows less reactivity than that of Ammonium Nitrate prill referenced in Section 12.4.1.5 of the UN Manual of Tests and Criteria, 5th revised edition.

7.5 UN Test 2(b): Koenen test and UN Test 2(c)(i): Time/pressure test

These tests were not performed, due to negative results in their UN Test Series 1 counterparts.

7.6 UN Test 8(d)(i): Vented pipe test

The result of this test was negative. The mass of substance tested was 83-lbs. In the trial conducted, voluminous white smoke and expulsion of the contents was first noted 6 minutes after ignition of the fire; this continued for approximately 4 minutes. Small volumes of white smoke were noted periodically for approximately 10 more minutes. 21 minutes after ignition, flame was noted at the top of the vent. There was no evidence of explosion, no loud noise or projection of fragments from the fire area in the trial conducted.

Figure 1. Representative substance, as received

Figure 2. UN 1(a) Gap Test, pre-test

Figure 3. UN 1(a) Gap test, post-test

Figure 4. UN 2(a) Gap test, pre-test

Figure 6. UN 2(a) post-test, unreacted mat'l

Figure 7. UN 8(d)(i) pre-test

Figure 8. UN 8(d)(i) post-test

8.0 Conclusion:

This substance can be excluded from Class 1 based on the results of the UN Test Series 1 and UN Test Series 2 tests. The result of the UN 8(d)(i) test indicates that this material is eligible for transportation in bulk. This material is comparable to Ammonium Nitrate prill in all UN Test Series 1 and UN Test Series 2 tests performed.

9.0 Recommendation:

Oxidizing solid, n.o.s. (Ammonium nitrate, oil shale), UN1479; Hazard Classification or Division 5.1, PG-III

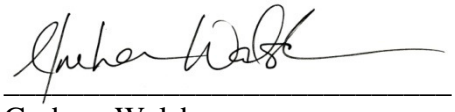
10.0 The recommended packaging, marking, and labeling for surface transportation (rail or highway) may be found in CFR 49 sections as follows:

Packaging: Section 173.213, 173.240
Marking: Section 172.300
Labeling: Section 172.426

If you have any questions about this requirement or how to proceed please do not hesitate to call us.

I hereby certify that this classification recommendation report, and all evaluation, examination, and testing carried out by Safety Consulting Engineers in preparation of this report are in full compliance with the applicable requirements of the HMR and this approval.

Certification and Examination by:



Graham Walsh
Senior Explosives Engineer
DOT Examiner

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www.sceinc.com

INSTRUCTIONS FOR DOT SUBMISSION

To receive Department of Transportation (DOT) classification before any explosive product is offered for shipment (per Section 173.56).

You may go ONLINE to http://www.phmsa.dot.gov/hazmat/e-services

To access the "Hazmat Special Permits and Approvals Online Application"

OR,

You must forward this Test Report and the accompanying Recommendation Letter to the following address:

Associate Administrator for Hazardous Materials Safety
PHMSA
U.S. DOT
Attention: PHH-32
1200 New Jersey Avenue
SE East Building, 2nd Floor
Washington, DC 20590

(Telephone No. 202 – 366-4512)