DEPARTMENT OF THE ARMY
U.S. ARMY GARRISON WHITE SANDS MISSILE RANGE
100 Headquarters Avenue
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-5000

January 17, 2023

SUBJECT: WSMR Response to NMED Letter 09 December 2022

Mr. Rick Shean
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Dear Mr. Shean:

This material in container 20220066 was not manufactured in this configuration. It was mixed together, for an unknown purpose at the former WSMR Chemistry Lab. It was found when all excess Hazardous Materials were turned in for disposal when the Laboratory was shut down. The container was labeled as to the contents, however specific concentrations were not noted.

Unfortunately, the DOT regulations in 49 CFR do not always match up to the RCRA regulations in 40 CFR. This being one of many cases. The 100% that was mentioned in WSMR's prior reply was not referring to RCRA regulations, it was referring to the DOT definition of and oxidizer. 49 CFR 173.127(a)(1)(i) States the following "If test O.1 is used (UN Manual of Tests and Criteria, sub-section 34.4.1), the mean burning time is less than the mean burning time of a 3:2 potassium bromate/cellulose mixture;" Section 34.4.1 specifically calls out that "Technically Pure Potassium Bromate" be used.

Therefore, anything less than "Technically Pure Potassium Bromate" would not meet the DOT definition of an Oxidizer and not be a RCRA D001 waste. From a purity standpoint "Technically Pure" is a pure substance just not to the standard required to be USP, Reagent or ACS grade. Technically Pure substances are suitable for industrial or manufacturing uses. Section 34.4 of UN Manual of tests has been included for your reference.

WSMR will add the excerpt Section 34.4 the UN manual of tests to our waste profile for this container. In the future WSMR will consider any oxidizer meeting the definition of a 5.1 hazard class a D001 Waste regardless if it meets the oxygen yield requirement to avoid any confusion.

The point of contact for this is Mr. Raymond Duran, Hazardous Waste Program Manager (575)678-4641, Mr. Jeff Smith, Chief Environmental Compliance Branch (575)678-6433, or myself at (575) 678-2225.

Sincerely,

KNIGHT.BRIAN.DANIEL.1271283330

Digitally signed by KNIGHT.BRIAN.DANIEL.1271283330
Date: 2023.01.17 13:05:32 -07'00'

Brian Knight
Chief, Environmental Division

Enclosure

34.4 Test methods for oxidizing solids and liquids

34.4.1 *Test O.1: Test for oxidizing solids*

34.4.1.1 *Introduction*

This test method is designed to measure the potential for a solid substance to increase the burning rate or burning intensity of a combustible substance when the two are thoroughly mixed. Tests are conducted on the substance to be evaluated mixed with dry cellulose in mixing ratios of 1:1 and 4:1, by mass, of sample to cellulose. The burning characteristics of the mixtures are compared with the standard 3:7 mixture, by mass, of potassium bromate to cellulose. If the burning time is equal to or less than this standard mixture, the burning times should be compared with those from the packing group I or II/Category 1 or 2 reference standards, 3:2 and 2:3 ratios, by mass, of potassium bromate to cellulose respectively.

34.4.1.2 *Apparatus and materials*

34.4.1.2.1 Technically pure potassium bromate is required as a reference substance. It should be sieved, but not ground, and the fraction with nominal particle sizes in the range 0.15 to 0.30 mm used as the reference substance. The reference substance is dried at 65 °C to constant mass (for a minimum of 12 hours) and kept in a desiccator (with desiccant) until cool and required for use.

34.4.1.2.2 Dried white cellulose[1], with a fibre mean diameter of approximately 25 µm, grain size less than 100 µm, apparent density of approximately 170 kg/m^3 and pH-value between 5 and 7, is used as the combustible material. It is dried in a layer no more than 25 mm thick at 105 °C to constant mass (for a minimum of 4 hours) and kept in a desiccator (with desiccant) until cool and required for use. The water content should be less than 0.5 % by dry mass. If necessary, the drying time should be prolonged to achieve this.

34.4.1.2.3 An ignition source is required comprising an inert metal wire connected to an electrical power source capable of maintaining the power dissipation specified below. The electrical resistance depends on the wire material. It is recommended to use a nickel/chromium or Aluchrom wire as follows:

(a) Length = 30 cm ± 1 cm;

(b) Diameter below or equal to 1 mm;

(c) Electrical power dissipated in the wire = 150 W ± 7 W.

The wire should be shaped as in Figure 34.4.1.1.

34.4.1.2.4 A 60° glass funnel, sealed at the narrow end, with an internal diameter of 70 mm is required to form the mixtures into a truncated conical pile with base diameter of 70 mm on a cool, impervious, low heat conducting plate. A 150 mm by 150 mm plate with a thickness of 6 mm and a thermal conductivity (at a temperature of 0 °C) of 0.23 W.m^{-1}.K^{-1} is suitable. Other plates with a similar conductivity may be used.

34.4.1.2.5 A fume cupboard or other kind of ventilated area is required in which there is some ventilation but with an air stream velocity of 0.5 m/s or less. ***The fume extraction system should be suitable for the capture of toxic fumes.***

34.4.1.2.6 The substance should be inspected for any particles less than 500 µm in diameter. If that powder constitutes more than 10 % (mass) of the total, or if the substance is friable, then the whole of the test sample should be ground to a powder before testing to allow for a reduction in particle size during handling and transport.

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[1] *Source reference available from the national contact for test details in France (see Appendix 4).*