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## Aluminium powder

Posted by Anonymous on Fri, 2014-09-26 13:11

Aluminium powder: I have just purchased some Aluminium powder and the MSDS from the supplier ( Chem supply ) states Non Hazardous and Non dangerous goods.

Other information from the Regional Technicians Group (Western Australia) risk assess states this is a 4.3 class chemical.

Could you clarify the correct class and storage requirement.

### Voting:



No votes yet

### Year Level:

7  
8  
9  
10

Senior Secondary

### Laboratory Technicians:

Laboratory Technicians

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## Answer by ginny.r.ward on question Aluminium powder

Submitted by sat on 03 October 2014

Answer reviewed 24 February 2023

We contacted Chem Supply about the SDS for their aluminium powder and they confirmed that their supplier has classified this chemical as non hazardous according to Regulation (EC) No. 1272/2008 and not a dangerous good.

The SDS states: '*This grade of aluminium atomised powder has been tested by an independent authority in accordance with the test procedures laid out in the ADG Code. The criteria for the 'dangerous when wet' classification is NOT met by this aluminium atomised powder, and accordingly has not been classified as a Dangerous Good. The decreased sensitivity to moisture and reactive nature of finely divided metal powders is due to a protective oxide layer.*'<sup>1</sup>

We also had a look into the gas atomisation process for generating aluminium powder and found that, typically, the process involves the introduction of a small percentage of oxygen into the atomisation gas so that a protective layer of aluminium oxide is formed on surface of the metal. The aluminium powder is thus 'passified' to reduce its explosion hazard and is rendered less reactive to water.

However, taking into consideration the ability of aluminium powder to liberate hydrogen on reaction with water, and the associated risk of powder ignition, as well as its incompatibility with acids, alkalis, oxidising agents and halogenated hydrocarbons, we are in agreement with the RTG (Regional Technicians Group, W.A. Department of Education) that the most appropriate place in a school Chemstore to store aluminium powder is with Class 4.3 chemicals (substances which in contact with water emit flammable gases).

## References

<sup>1</sup> ChemSupply Australia website, (2023), *Safety Data Sheet: Aluminium powder*. Please search the product information page on the website for the current SDS for Aluminium powder <https://shop.chemsupply.com.au/>

Gopienko, Victor G., *Production of Aluminum and Aluminum Alloy Powders*, Chapter 12 in *Handbook of Non-Ferrous Metal Powders: Technologies and Applications* (authors: Oleg D. Neikov, Stanislav Naboychenko, Irina B. Mourachova, Victor G. Gopienko, Irina V. Frishberg, Dina V. Lotsko), Burlington: Elsevier Science, 2009, pp. 268-271.

Tang, F., Anderson, I.E., and Biner, S.B., *Journal of Light Metals* 2, 2002, p. 201. Neikov, Oleg D., *Safety Engineering in the Production of Powders*, Chapter 24 in *Handbook of Non-Ferrous Metal Powders: Technologies and Applications* (authors: Oleg D. Neikov, Stanislav Naboychenko, Irina B. Mourachova, Victor G. Gopienko, Irina V. Frishberg, Dina V. Lotsko), Burlington: Elsevier Science, 2009, pp. 554-558.

## Answer by Judy Hasse on question Aluminium powder

Submitted by on 13 October 2014

Hazardous refers to whether the chemical causes harm to the human body not to the

Dangerous Good class. My MSDS has it as Non dangerous goods as well, but doesn't specify a class. I would store it as a 4.3 because water cannot be used for fire fighting purposes. Because it is in powder form it is highly flammable.

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