

EDITORIAL AND TECHNICAL GROUP OF
THE SUB-COMMITTEE ON CARRIAGE OF
CARGOES AND CONTAINERS
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Agenda item 3.2

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PREPARATION OF DRAFT AMENDMENT 04-17 TO THE IMSBC CODE

New proposals of amendments to the Code, new individual schedules or amendments to existing ones

Comments on document CCC 2/5/24 regarding the existing schedule for AMMONIUM NITRATE BASED FERTILIZER (non-hazardous)

Submitted by the European Chemical Industry Council (CEFIC)

SUMMARY

Executive summary: This document comments on document CCC 2/5/24

Strategic direction: 5.2

High-level action: 5.2.3

Output: 5.2.3.3

Action to be taken: Paragraph 11

Related document: CCC 2/5/24

Introduction

1 In document CCC 2/5/24, Germany has proposed that AMMONIUM NITRATE BASED FERTILIZER (non-hazardous), which is currently a cargo of Group C for bulk transport, be classified as ammonium nitrate based fertilizer, MHB (OH) according to paragraph 9.2.3.1.4 of the IMSBC Code resulting in assignment to a cargo of Group B.

Discussion

2 CEFIC wishes to share the information about the types of fertilizers falling in this category, their relevant properties and to respond to various points raised by Germany. CEFIC suggests that based on the available information, the existing assignment to Group C appears appropriate and reasonable.

Types of fertilizers

3 This category of fertilizers includes the following three main types:

- .1 products which are uniform mixtures containing no more than 80% ammonium nitrate mixed with calcium carbonate and/or dolomite and/or mineral calcium sulphate and not more than 0.4% total combustible/organic material calculated as carbon; commonly known as CAN;
- .2 Nitrogen type ammonium nitrate based fertilizers containing mixtures of ammonium nitrate and ammonium sulphate with no more than 45% ammonium nitrate (known as ASN types); and
- .3 mixtures of the nitrogen, phosphate or potash type, (commonly known as NPK, NP or NK types) containing not more than 70% ammonium nitrate and not more than 0.4% total combustible/organic material calculated as carbon or with not more than 45% ammonium nitrate and unrestricted combustible material.

4 It is important to note that the above-mentioned products are not self-heating and are stable. Moreover, they do not decompose unless exposed to substantial amounts of heat energy or high temperatures.

Hazard, Stowage & Segregation, Loading, Precautions and Discharge

5 The industry has noted that some of the requirements in the individual schedule for AMMONIUM NITRATE BASED FERTILIZERS (non-hazardous) are primarily for product quality rather than for safety. The industry wishes to comment on the points raised in document CCC 2/5/24 (paragraph 3) as follows:

- .1 *"This cargo shall not to be stowed near to compartments or tanks with more than 50°C"*: The established test for self-heating behavior is UN test 33.3.1.6, test #4, (at 140°C for 24 hours). These fertilizer products do not show self-heating behavior according to this test and are therefore stable at temperatures well above 50°C. Test reports are available;
- .2 *"Bunkering of fuel oil and pumping of fuel oil in spaces adjacent to the cargo spaces shall not be allowed"*: Bunker oil pipes do not go directly through the cargo holds. Albeit not likely, if oil is spilled into the cargo, there is no immediate risk (fire or decomposition). Contaminated product can be removed and relevant guidance for disposal is available;
- .3 *"All non-approved electrical equipment in the cargo spaces shall be disconnected while the cargo is on board and no welding, burning or other operations involving spark-producing equipment should be carried out near to the cargo spaces"*: It covers 2 issues, electrical systems and hot work:
 - .1 Electrical equipment. This requirement intends to prevent heating. Note: these (solid) fertilizers are not flammable, they cannot burn. The real risk is that the heat generated by electrical equipment will heat the surrounded fertilizer above the decomposition temperature. Industry would like to suggest this requirement be re-phrased in the IMSBC code.

- .2 Hot work. Hot work can generate high temperatures that may induce decomposition of the material. The requirement to prevent hot work adjacent to product is relevant. It should be noted that similar requirements are in place for a number of other non-hazardous products (Group C) which can decompose or burn on heating.
- .4 *"Due considerations shall be paid to the possible need to open the hatches in case of fire to provide maximum ventilation and supply of water"*. Industry is in favour of rephrasing this in the IMSBC Code. In case of thermal decomposition ensure that hot gases are able to escape and that pressure build-up is prevented. Therefore, the focus is on maximum ventilation. This can be done, for example:
 - .1 by opening of the cargo entrances from both sides;
 - .2 by opening the ventilation pipes;
 - .3 by opening the cement holes; or
 - .4 by slightly lifting (when safe) of the hatch covers.
- .5 *"Monitoring of the cargo temperature may give an early indication of decomposition"*. It is the only one of the potential indicators of a decomposition. A more likely indicator is the appearance of visible fumes. It should be reminded that these fertilizers do not spontaneously heat up and decomposition only occurs if significant external heat is applied.
- .6 *"The cargo shall be stowed out of direct contact with an engine-room bulkhead"*. This is a reasonable precaution which aims to prevent exposure to potentially significant heat sources. However, it should be noted that to date no reported incident has been caused by heating through the engine room bulkhead.

6 As already noted, some of the requirements in the IMSBC Code are only given in order to protect the quality and are not related to product safety. For example:

- .1 the cargo should not be handled during precipitation; and
- .2 the holds should not be ventilated.

Industry guidelines and case reports

7 The high safety and quality standards that are in place in the industry with regard to production, storage and handling of ammonium nitrate based fertilizers are associated with the Product Stewardship programme promoted by the industry. The industry publishes guidance documents in order to encourage best practice in safety, security and quality. With respect to the *Guidance for Sea Transport of Ammonium Nitrate based Fertilizers*, the requirements reflect those of the IMSBC code.

8 CEFIC would like to clarify comments in the document CCC 2/5/24 on the use of ships fixed firefighting system in dealing with decompositions. A decomposition is a chemical reaction not combustion. The required emergency action is to quench it with water while maintaining adequate ventilation. As mentioned in the IMSBC Code, firefighting systems using other media (e.g. CO₂) are ineffective.

Accidents

9 It is pertinent to note that the latest incident on the cargo ship **Purple Beach** remains under investigation and no firm conclusions can yet be drawn. However, the history of decomposition incidents suggests that they were caused by failure to follow the instructions that were already in the Code, e.g. leaving lamp on within fertilizer bulk cargo or not noticing the presence of hot oil pipes in the bulk cargo. Assignment of these fertilizers into cargo Group B would not have prevented these incidents, nor would it have limited the consequences.

Conclusion

10 Non-classified (UN) ammonium nitrate based fertilizers in themselves are non-hazardous products. They can be handled in a safe way without extra precautions and without danger to human health or to the environment. The industry's view is that a reclassification of AMMONIUM NITRATE BASED FERTILIZERS (non-hazardous) to MHB (OH) cargo Group B is not justified by the information currently available.

Action requested of the group

11 The group is invited to consider the comments above and take action as appropriate.
