

GUIDANCE FOR THE DISPOSAL OR UTILISATION OF AN BASED FERTILISER WHICH FAILS TO MEET THE REQUIREMENTS OF THE AMMONIUM NITRATE SAFETY REGULATIONS 2003

1. Background

A holder of material:

- (i) Which fails the detonation resistance test (DRT) or
- (ii) for which the DRT certificate ceases to be valid (Reg.3(3)) or
- (iii) where it is apparent to the person keeping the material that it is contaminated or in such poor condition as it might reasonably be expected to fail a DRT (Reg. 6(4)),

is required to inform the enforcement authority of that fact and of the measures he proposes to take to reduce the risk of detonation of the batch of AN material to an insignificant level (Reg.(3)(a)).

This guidance has been produced by the Fertiliser Sector of the Agricultural Industries Confederation AIC (formerly the Fertiliser Manufacturers Association, FMA) in consultation with the HSE and Defra to assist the holder of such material in determining the most appropriate measure for this purpose.

2. Introduction

The remedial actions recommended are those which the producers of the Guidance consider to be the most appropriate. However, it should not be assumed that UK plant operators who are not directly involved in the handling of the failed material, will be able or be prepared to make their facilities available for the remedial action. The holders of failed materials should establish the availability of such plant and its ability to process the tonnages requiring treatment before informing the enforcement

authorities as to the measure to be taken to reduce the risk of detonation and the timescale to implement it. The enforcing authorities will need to agree these proposals.

If the recommended remedial actions are either not appropriate or are not possible under particular circumstances, it may be necessary to use the services of a licensed hazardous waste disposal company to dispose of the material.

All remedial action should be preceded by a risk assessment to ensure that it is suitable. The AIC may be able to advise on technical experts who could perform this function.

3. Remedial Action

The appropriate action to reduce the risk of detonation of the batch of AN material will vary depending on the nature of the cause of the actual or anticipated DRT failure. Before deciding on the appropriate remedial action, the holder of the material will need to establish by the best means possible the most likely cause of the failure. The failure may affect the full batch or part of the batch which can be readily segregated, leaving the remainder unaffected. Likely causes of failure and the appropriate remedial measures are described below.

3.1 Low Density or Inadequate Thermal Stabilisation

These are inherent causes and as such are likely to affect the total consignment unless there has been a failure in the sampling or dispatching e.g. wrong product sampled or wrong product loaded or fraudulent DRT.

The following remedial measures are suggested:

- (i) Return the product to the supplier, otherwise:

- (ii) Dilute with compatible inert material (see 4(a)).
- (iii) Dissolve in water (see 4(b)).

3.2 Product with Excess Fines

The following remedial measures are suggested, the choice being dependent on the quantity of the unsatisfactory material.

- (i) Where sufficiently large quantities are involved the material should be screened to separate out the fines to give product meeting specification. (See 5.)

The product within specification can be marketed subject to it passing a DRT.

- (ii) Fines should be treated:
 - a) dilute with inert material (see 4(a)) or
 - b) dissolve (see 4(b)).
- (iii) For smaller quantities where screening is not justified, dilute (see 4(a)) or dissolve (see 4(b)) the material to render safe.

3.3 Deteriorated Product

Product can deteriorate as a result of, for example, prolonged storage in poor conditions or excessive handling. Whole or part batches can be affected. In the latter case deteriorated product should be separated out, if practical.

Product within specification (non-deteriorated) can be marketed provided it can be clearly demonstrated that it has not been affected and is unlikely to fail a DRT by means of size grading, bulk density and porosity measured by oil absorption test in the case of straight ammonium nitrate or, the case of AN-containing compounds, by risk assessment acceptable to the Authorities. In some circumstances however, a DRT may be the only option.

The remainder should be diluted with an inert material (see 4(a)) or dissolved (see 4(b)).

3.4 Contaminated with Solid Materials

The following two situations can arise depending on the nature of the contamination.

- (i) The contaminant is a safe material, such as an inert material, eg, limestone.

The product can be marketed under a new specification provided it can be demonstrated by available results of DRTs on comparable formulations/compositions or actual testing that it will pass a DRT, or utilised as a blend component (see 4(c)). Similarly, if the contaminant is a compatible material e.g. a phosphate, the affected material can be utilised as a blend component (see 4(c))

- (ii) The contaminant is inorganic, but not inert to AN, eg, potassium nitrate. .

Where practicable, e.g. in the case of packaged product, separate out the uncontaminated packages for marketing provided it can be clearly demonstrated by means of chemicals analysis or inspection that the product is unaffected. Treat the remainder or the complete batch where not possible to separate out as above using the following options:

Dilute with inert material (see 4(a))

Dissolve (see 4(b)).

3.5 Contaminated with Sea Water

Where practicable, separate out the uncontaminated materials for marketing provided it can be clearly demonstrated that the cause of the problem is known and that the affected material can be readily segregated and it meets the criteria for its type as laid down in The Fertiliser Regulations 1991 (as amended). Treat the remainder by:

- (i) Diluting with inert material (see 4(a))
- (ii) Dissolving (see 4(b)).

3.6 Contaminated with Organic Materials e.g. oil, coal dust, seeds, animal feed, organic substances etc.

It should be noted that AN which is uniformly contaminated and contains more than 0.2% organic substance (expressed as carbon) will be classified as Class 1 (i.e. classed as an explosive, and relevant explosive legislation will apply). This is potentially a very hazardous situation and extra care needs to be taken when treating and handling these materials. Experience shows the risk of contamination to be more relevant to bulk materials. Normally only a proportion of the load is affected.

Following a suitable risk assessment and where practicable and safe, separate out the uncontaminated material for marketing provided it can be clearly demonstrated that the cause of the problem is known, that the unaffected material can be readily segregated and it meets the criteria for its type as laid down in The Fertiliser Regulations 1991 (as amended). Specialist advice should be sought for dealing with the contaminated material.

4. Treatment Processes

a) Dilution with Inert Material

Mix/blend product with inert materials such as limestone, dolomite, china clay, gypsum, phosphate rock, and/or sand to a ratio of 1:1.

The diluted product can be marketed once analysed and appropriately labelled in accordance with the Fertiliser Regulations 1991 (as amended) or used as a blend intermediate (see 4(c)).

b) Dissolving in Water

Dissolve the product in water to produce an aqueous solution.

Where the solution is of an acceptable purity, it can be recycled into a production process or utilised in other processes such as the production of Urea Ammonium Nitrate (UAN) or NPK solutions. In the case of material contaminated with sea-water, organics or other materials that can sensitise ammonium nitrate extra care needs to be taken. A thorough risk assessment should be carried out, particularly where the down-stream process involves heat input.

c) Incorporation as a Blend Intermediate

Use as a nitrogen source in the production of blended fertilisers. The nitrogen content of the blend, derived from the ammonium nitrate material, should not exceed 17 % (i.e. < 50% AN).

5. Treatment Sites

Unless the quantities involved are small enough to enable manual treatment to be carried out, it will be necessary for the treatment to take place at the site of a solids manufacturer, fluid manufacturer, blender or bagging unit or to use mobile screening and bagging facilities. Such sites are generally the only ones with the equipment suitable for processing large quantities of failed product. However, each site will have a limited capacity as to the quantity of failed product it can store and reprocess. Thus it may be necessary to contract out the treatment of large quantities of failed product at a number of separate locations or utilise the services of mobile screening and bagging facilities. It should be noted that not all sites *capable* of treating failed material may wish to handle it.

All sites will need to comply with the relevant Health and Safety legislation (see 8).

6. Transport

The transport of failed product will be subject to the standard regulatory controls which apply to all hazardous materials. The availability of suitable vehicles and appropriately trained drivers can be a limiting factor in the treatment of failed product and will need to be taken into account when entering into contractual arrangements with treatment sites. Particular care is required if the failed product falls within UN Class 1, in which case explosives legislation applies.

Appropriate Regulations –

The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004 (SI 2004 No.568)

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7. Storage

Failed product will require storage at the point of production discharge, intermediate sites or at treatment sites. Depending on the quantities involved these stores may need to be registered under the appropriate legislation and, in particular, COMAH, NIHHS and/or Planning (Hazardous Substances) Regulations.

Disclaimer:

These guidelines have been prepared by the Fertiliser Sector of the Agricultural Industries Confederation (AIC) in consultation with the HSE and Defra. Neither AIC nor its consultees can accept liability for accident or loss attributable to the use of information given in this guidance.

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