

# GUIDANCE FOR HANDLING NON-CONFORMING AMMONIUM NITRATE BASED FERTILIZERS IN DISTRIBUTION CHAIN



## INTRODUCTION

This **short guidance** is based on the detailed version, *Guidance For Safe Handling and Utilization of Non-Conforming Solid Fertilizers and Related Materials for Fertilizer Importers, Distributors and Merchants*, issued by EFMA.

It applies to non-conforming fertilizers, in particular those which are based on ammonium nitrate, i.e. they contain nitrogen, N, in both ammoniacal ( $\text{NH}_4^+$ ) and nitrate ( $\text{NO}_3^-$ ) forms and relates to operations in warehouses belonging to importers, distributors and merchants.

**Non-conforming** material is any product which does not conform to the original specification; it includes off-spec and reject materials.

**Reject materials** are products, which are out of specification, have deteriorated or become contaminated during storage, handling and/or transport to an extent where they can be considered potentially hazardous. They cannot be sold as fertilizer products anymore and may require treatment to render safe.

## GENERAL MEASURES

- Handle and store products in appropriate way to minimise risk of physical breakdown and contamination.
- Do not allow different non-conforming materials to mix; also, keep them separate from conforming fertilizer materials.
- Keep records of products and non-conforming materials.
- Certain inert materials can be used to render safe potentially hazardous materials. Recommended inert materials include: limestone, dolomite, magnesite, clay, gypsum, phosphate rock, sand, calcium sulphate-anhydrite.
- The following materials are **not** generally recommended: mono ammonium phosphate (MAP), di ammonium phosphate (DAP), single super phosphate (SSP), triple super phosphate (TSP).
- In case of dilution with inert, a ratio of 1:1 is recommended. Do not allow the treated material to mix with other materials e.g. by storing it in bags.  
Options to deal with the diluted material:
  - sell under a new specification,
  - return to supplier, or
  - dispose as a competent disposal companydepending on the nature of the original reason for rejection.
- Take care to minimise the quantities of non-conforming, sieved-off and contaminated materials stored.
- If in doubt, contact the producer or importer for expert advice.

## SPECIFIC MEASURES

In practice, most non-conforming materials have minor deviations and physical deterioration; they would not be potentially hazardous in nature. Given below are three types of non-conforming materials, which could be generated in typical operations, with indicators of deviations. Remedial measures are listed as alternative options.

### PRODUCTS WITH MINOR QUALITY DEFICIENCIES AND WITHIN LEGAL LIMITS

**For example**, minor deviations in:

- Particle size.
- Nutrient content.
- Moisture content.
- Flowability (e.g. caking).

**Options:**

- Separate good product e.g. by screening, and deal with the remainder (fines or oversize) e.g. by blending, dissolving or diluting.
- Sell under a new specification.

### PRODUCTS WITH SIGNIFICANT PHYSICAL DETERIORATION (NO CHANGE IN NUTRIENTS)

**Examples:**

- Substantial amount of dust.
- Considerable weakening of granules/prills.
- Breakdown due to thermal cycling or rough handling.

**Precautions:**

- Regularly inspect the deteriorated material.
- Do not store it for extended periods e.g. maximum 3 months.

**Options:** Depending on the extent of deviation, different measures can be taken.

- Sell with new specification, if permissible.
- Sieve-off good product and deal with the remainder e.g. dissolve or dilute.
- Dilute fines/dust or badly deteriorated product with one of the recommended inerts in 1:1 ratio. Sell, return or dispose (see General Measures).

### CONTAMINATED MATERIALS

#### • With pieces of wood, plastic or rubber

**Options:** If possible, remove the contamination and sell the good product. If not possible, dilute with inert in 1:1 ratio. Dispose using a competent company.

#### • With oil, grease or sawdust

**Options:**

Dilute with inert in 1:1 ratio and dispose using a competent company. Dissolve in water.

#### • With agricultural and/or organic chemicals

Take quick action, as the mixture can be particularly hazardous.

Keep it separate from all conforming and non-conforming materials.

Contact producers or importers for expert advice.

If reaction observed e.g. release of fumes, dilute with plenty of water.

#### • Floor sweeping

**Precautions:**

Clean up frequently, as dust and contaminated spills can be unsafe.

Do **not** use sawdust for cleaning up; use instead ground lava stone, sand, limestone, phosphate rock.

**Options:**

Dispose using a competent company.

Dilute with an inert material and dispose using a competent company.

#### • With other fertilizer materials

Avoid the mixing of different fertilizer types or with micronutrients so as not to create a hazardous mixture.

**Options:**

Mix with acceptable fertilizer materials to produce a blend product.

Dilute with an inert material or dissolve.

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FOR FURTHER INFORMATION: