



GENEZIS



HANDLING AND STORING GUIDE
FOR “GENEZIS” FERTILIZERS

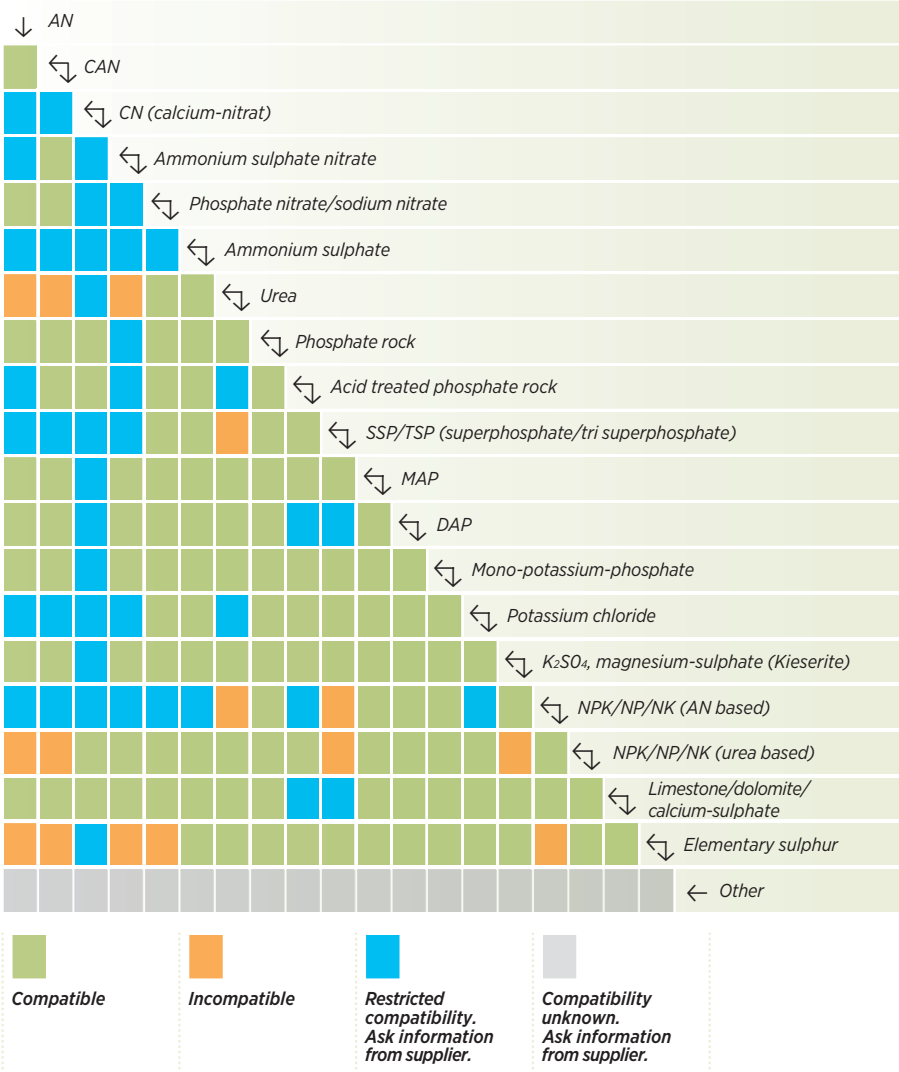
The purpose of this guide is to provide guidance in order to avoid the deterioration of the quality as regards the proper storing of fertilizers, to preserve the original quality of the fertilizers, to protect the health of the persons and to prevent environmental hazards.

THE FOLLOWING STORAGE CONDITIONS ARE GENERALLY IN EFFECT AND IN RESPECT OF ALL THE “GENEZIS” FERTILIZERS.

- ▶ **It is strictly forbidden to smoke and to use naked flame within the area of fertilizer storage!**
- ▶ **It is strictly forbidden to store in bulk ammonium-nitrate fertilizers (AN 34 %)!**
- ▶ **It is forbidden to store chemical fertilizers in bulk in open air!**
- ▶ The entry of unauthorised persons into the chemical fertilizer warehouse has to be prevented
- ▶ Chemical fertilizers have to be stored far away from water flows and sewer openings
- ▶ Chemical fertilizers should not be contaminated and mixed with the following materials:
 - *acids, alkalis (hydrochloric acid, sulphuric acid, lime, cement)*
 - *metal powders, metal compounds (copper, zinc, chromium, nickel, cobalt)*
 - *chlorides*
 - *organic and combustible, flammable materials*
 - *fuels, oil, grease, organic solvents, paints, insecticides*
 - *agricultural products, seeds, hay, straw*
 - *wood, saw dust*
 - *other materials incompatible with the stored chemical fertilizers*

Compatibility matrix

02



The matrix shows the relationship of the specific chemicals to each other.

Suggestions for indoor storage

▶ Main characteristics of the warehouse:

- Closed, safe building, made from non-flammable materials (concrete, bricks)
- Protected from weather, interior temperature between 5 and 30 °C
- Dry, dust-free and contamination-free place
- Its foundation has to be a dry and smooth surface
- Surfaces that are in contact with the fertilizer have to be well insulated
- Good ventilation

In the case of packed chemical fertilizers the warehouse should be well ventilated, it is not necessary to keep the doors closed.

In the case of bulk chemical fertilizers the doors have to be kept closed all the time, it is strictly forbidden to open the door of the warehouse in case humidity is higher than the critical relative humidity.*

- ▶ The fertilizer has to be protected from direct sunlight, hot objects, surfaces, its temperature should not increase above 32 °C, local overheating should be prevented
- ▶ Penetration of water into the warehouse in any way has to be prevented
- ▶ Avoid loading in rainy, foggy weather

**According to our interpretation, humidity below the critical level is that moisture content of air at which the chemical fertilizers do not absorb and do not emit water. The value of critical humidity is depending on temperature. If the humidity of air exceeds critical humidity, the fertilizer will absorb water. Different nitrogen chemical fertilizers have different critical humidity values (prilled CAN 55 RH %, granulated CAN 62 RH %, urea 74 RH % at 20 °C).*

Suggestions concerning outdoor storage

- ▶ Storing chemical fertilizers outdoors should be avoided. Chemical fertilizers may be stored in open air only if they can be protected from radiating heat in a manner that will prevent the increasing of the temperature of the fertilizer above 32 °C.

- ▶ Protect the fertilizer from the impacts of weather (solar radiation, rain).

- ▶ **Main characteristics of the space of storage:**
 - *a dry space with good water drainage*
 - *smooth, free of potholes*
 - *shaded*

- ▶ If the space of storage is not a smooth, pothole free area, place the bags on pallets.

- ▶ Cover the bags containing chemical fertilizers with appropriately fixed, light coloured, waterproof foil in order to prevent the penetration of moisture and other contaminants.



Stack forming from packed goods

▶ Pallet products

- The pallet stack may be maximum 2 rows high.
- The middle leg of the pallets that are in the top row should not be between two pallets of the bottom row. It has to be always fully placed on a pallet of the bottom row.

Improper
stack
building



Proper
stack
building



► Big-bag products

- Bags have to be put into a pyramid structure
 - it is forbidden to deposit a tumbled big-bag into the depo
 - the big-bag has to be placed in a way that it should not tumble
 - none of the sides of the bags located in the top row should slip between the lower bags
- On a stable, pothole free surface the height of the stack may be 2 or 3 rows of bags
- The height of the big-bags placed on the pallet should be maximum 2 rows
- Big-bags may be lifted only with devices that have been developed especially for this purpose
- It is forbidden to move the bags with the forks of a trolley or with any other lifting device not designed for this purpose

It is forbidden to lift big-bags this way



Device suitable for lifting big-bags



Environment protection related provisions

► Handling of products with damaged packaging

- They have to be stored separately, on separate pallets.
- Further spillage of the chemical fertilizer should be prevented.
- Spilled chemical fertilizers have to be cleaned up within the shortest time possible, and then the cleaned up fertilizers have to be put into clean, labelled bags/containers. Outdoor containers have to be protected from environmental impacts.
- Contaminated chemical fertilizers have to be handled according to the rules that refer to hazardous wastes.
- Plastic packaging waste created as a result of utilisation has to be deposited at an authorised waste handling organisation.

Safety provisions

- Storage instructions should be easily accessible.
- Please maintain order and cleanliness within the warehouse at all times.
- Always keep free the transport roads and the fire brigade staging area.
- Keep regular safety inspections.
- Regularly train the employees as regards safe work implementation and hazardous situations.
- Apply the appropriate safety and alarming signals.
- Fire extinguishing apparatuses should be always easily accessible.
- Use only tested electric equipment.
- The protection class of the electric equipment has to be IP-54. Electric equipment have to be equipped with overload protection.
- Copper and aluminium fittings have to be protected from the dust of ammonium-nitrate. The equipment have to be continuously cleaned from the dust of chemical fertilizers.
- The fire protection inspection of the electric equipment has to be organised according to the relevant legal provisions.

- Fertilizers that contain ammonium-nitrate (AN 34 % and CAN) may be stored only at places, where the required extinguishing-water intensity is continuously ensured.
- It is necessary to keep the fire extinguishing apparatus(es) of appropriate fire extinguishing performance ready-for-operation for extinguishing the fires of pallets and other combustible materials.
- In the vicinity of the possible sources of serious fires or explosions (e.g. oil storage locations, gas pipelines) it is forbidden to store chemical fertilizers.
- Chemical fertilizers have to be stored in a way that prevents their exposure to the impacts of thermal sources and which prevents their contamination with combustible materials.
- It is allowed to use only water for extinguishing fires created by the decomposition of chemical fertilizers. Therefore foam, carbon-dioxide or powder extinguishers are ineffective for extinguishing fires of this kind, these materials may be used only for extinguishing the other fires that develop in the vicinity of the chemical fertilizer.
- The size of stocks and distance between stocks and between a stock and a building should be according to the relevant national regulation or standard.



Disaster management related provisions – for storing AN chemical fertilizers (AN 34% N)

(Directive 2012/18/EU (SEVESO-III.))

A permit has to be obtained from the competent authority based upon the below documents (according to the Directive):

- **Stored volume \geq 1250 tonnes** (Bottom threshold) –
A Safety Analysis has to be prepared.
- **Stored volume \geq 5000 tonnes** (Top threshold) –
A Safety Report has to be prepared.

(If you are storing ammonium nitrate that does not meet the quality specifications, then the above threshold quantities are the following: 10 and 50 tonnes respectively.)



Chemical fertilizer related provisions

(legislative, authority provisions, standards)

- Regulation 2003/2003/EC of the European Parliament and Council (October 13, 2003) on chemical fertilizers
- Relevant national regulations on environment protection
- Relevant national regulations and standards on fire protection
- Directive 2012/18/EU of the European Parliament and Council of July 4, 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82 EC.
- Recommendations of FERTILIZERS EUROPE (European Fertilizer Manufacturers' Association)
www.fertilizerseurope.com
- Chemical fertilizer safety data sheets - www.nitrogen.hu





NITROGÉN MŰVEK ZRT.

H-8105 Pétfürdő, Hősök tere 14.

Phone: +36 88 620 100

Fax: +36 88 620 102

E-mail: nrt@nitrogen.hu

Web: www.nitrogen.hu



www.genezispartner.hu