



HIP
AZOTARA

COMPANY FOR THE PRODUCTION OF FERTILIZERS AND NITROGEN COMPOUNDS

"HIP - AZOTARA" d.o.o. Pančevo

SAFETY DATA SHEET

Compiled on: 9.12.2010.

Revised on: 3.2.2012.

Replaces the previous version of the safety data sheet starting from: 15.5.2015.

Version No: 1

Rev. No: 5

SECTION 1. IDENTIFICATION OF THE SUBSTANCE /MIXTURE AND OF THE COMPANY/UNDERTAKING

Subsection 1.1. Product identifier:	NPK BLENDED FERTILIZER OF NITROGEN (N), PHOSPHORUS (P) AND POTASSIUM (K) SALTS
Subsection 1.2. Relevant identified uses of the substance or mixture, and uses advised against:	Used primarily for plant nutrition. It is applied over the soil, by spreading evenly over the whole area or locally (side-dressed along the rows or stalks, with or without incorporating into the upper layer of soil). Applicable to the following crops: wheat, maize, sunflower, fruit and vegetables.
Uses advised against:	None.
Subsection 1.3. Details of the Supplier:	
a) Manufacturer/Supplier:	"HIP-AZOTARA" d.o.o. Pančevo
b) Status:	Manufacturer/Producer
c) Street address and telephone number:	Spoljnostarčevačka 80, 26000 Pančevo, The Republic of Serbia +381 13 308067; 7-15 h(Environmental Protection Department) +381 13 308052, 308057; 7-15 h (Sales Department)
d) e-mail address of competent person responsible for the SDS:	gordana.vasojevic@hip-azotara.rs ekologija.info@hip-azotara.rs
Subsection 1.4. Emergency address and telephone number:	National Poison Control Center– VMA Crnotravska 17, 11 000 Belgrade +381 11 2661122, 3608440 (24 h / 7 days a week)

SECTION 2. HAZARDS IDENTIFICATION

Subsection 2.1. Classification of the substance or mixture:	NPK fertilizers are not classified as hazardous substances.
Subsection 2.2. Label elements:	No hazardous properties – label elements are not applicable.
Subsection 2.3. Other hazards:	
a) persistent-bioaccumulative-toxic/very persistent-very bioaccumulative	- The substance is not classified as PBT, or as vPvB.
b) Information on other harmful effects on human health	- there is no harmful effects on human health
v) Information on environmental effects	- there is no environmental hazard

SECTION 3. INFORMATION ON INGREDIENTS

Subsection 3.1. Information on the ingredients of the mixture:

Blended NPK fertilizer is produced through blending of: calcium ammonium nitrate (CAN), phosphates (MAP), potassium salts (KCL) with the following concentration of ingredients in [% m/m] for the different formulations:

<i>Product identifier</i>		KAN	MAP	KCl
<i>NPK formulation</i>	15:15:15	CAN (25%N) ≥ 47	MAP 52-11 ≥ 28	KCl (60%) ≥ 24
	15:15:15	CAN (27%N) ≥ 42	MAP 46-10 ≥ 32	KCl (60%) /
	20:20:0	CAN (25%N) ≥ 62	MAP 52-11 ≥ 37	KCl (60%) /
	20:20:0	CAN (27%N) ≥ 56	MAP 46-10 ≥ 42	KCl (60%) /
	13:13:21	CAN (25%N) ≥ 40	MAP 52-11 ≥ 24	KCl (60%) ≥ 34
	9:18:27	CAN (25%N) ≥ 20	MAP 52-11 ≥ 35	KCl (60%) ≥ 44
	9:18:27	CAN (27%N) ≥ 18	MAP 46-10 ≥ 38	KCl (60%) ≥ 43
	10:30:20	CAN (25%N) ≥ 14	MAP 52-11 ≥ 56	KCl (60%) ≥ 32
	12:35:10	CAN (25%N) ≥ 15	MAP 52-11 ≥ 67	KCl (60%) ≥ 16
	4:18:39	CAN (25%N) ≥ 6	MAP 52-11 ≥ 32	KCl (60%) ≥ 61
	25:6:0	CAN (27%N) ≥ 87	MAP 46-10 ≥ 12	KCl (60%) /
	8:16:24	CAN (27%N)	MAP 46-10	KCl (60%)

		≥16	≥34	≥39
	6:18:35	CAN (25%N) ≥8	MAP 52-11 ≥33	KCl (60%) ≥57
Occupational exposure limit values		/	/	/
Classification according to CLP/GHS				
Hazard class and category		/	/	/
Hazard statements		/	/	/

* see Section 16 for full text of risk phrases and hazard statements.

** The main substance in CAN is ammonium nitrate (CAS: 6484-52-2), and it is present in CAN fertilizer in following percentages: CAN 25% N contains 71% and CAN 27% N contains 77%. Ammonium nitrate has certain harmful effects (Oxidizing solid 3 H272; Eye irritation, cat. 2, H319), however, the classification of this chemical does not affect the classification of NPK fertilizers. According to OECD studies, mixtures containing less than 80% ammonium nitrate are not classified as irritating to eyes.

SECTION 4. FIRST AID MEASURES

Subsection 4.1. Description of first aid measures:

- | | |
|---------------------------|---|
| - following inhalation: | Move the injured person to fresh air at once. Keep the patient warm and administer oxygen if there is blueness around the mouth. Obtain immediate medical attention in case of adverse effects. |
| - following skin contact: | Wash the affected area with soap and water. |
| - following eye contact: | Immediately flush eyes with water for at least 15 minutes. Obtain medical attention if eyes irritation persists. |
| - following ingestion: | Do not induce vomiting. Give water or milk to drink. Obtain medical attention if a large quantity has been swallowed. |
| - advice: | Give immediate first aid, obtain medical attention and fully inform the physician about the details of the accident. |

Subsection 4.2. Most important symptoms and effects, both acute and delayed:

The most important symptoms following inhalation are: slight irritation in the form of sore throat and coughing. Ingestion: Small quantities are unlikely to cause toxic effect, however large quantities may give rise to gastro-intestinal disorders and, in extreme cases (particularly in children), formation of methaemoglobin ('blue baby' syndrome) and cyanosis (indicated by blueness around the mouth) may occur. Following skin contact may cause skin irritation, redness and itching. Eye contact: causes eye irritation.

Subsection 4.3. Indication of any immediate medical attention and special treatment needed:

Obtain medical attention if any of the above symptoms occur.

SECTION 5. FIREFIGHTING MEASURES

Subsection 5.1. Extinguishing media:	The suitable extinguisher is water . Do not use chemical extinguishers or foams or attempt to smother the fire with steam or sand.
Subsection 5.2. Special hazards arising from the substance or mixture:	Vapours resulting from fertilizer combustion, i.e. ammonium nitrate combustion are toxic. Ammonia and nitrogen oxides are released. Do not allow molten fertilizers to run into drains. If water containing fertilizer enters any drains, inform the authorities immediately. Fire may be caused by: non-compliance with the maintenance instructions (working without the permit obtained from the responsible person), not following the instructions from the work permit (negligence, carelessness, lack of knowledge).
Subsection 5.3. Advice for firefighters:	Firefighters must be protected by wearing suitable protective clothing and self-contained breathing apparatus. They must also be trained for carrying and properly using the equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Subsection 6.1. Personal precautions, protective equipment and emergency procedures:	Use personal protective equipment. For information on protective equipment see <i>Subsection 8.2. Exposure controls and personal protection</i> . Avoid contact with eyes and skin.
Subsection 6.2. Environmental precautions:	Any spillage of NPK fertilizer should be immediately cleaned up, put into a clean, open container for safe disposal and labelled properly. Do not allow mixing with dust and other combustible or organic substances. In case of ammonium nitrate vapours spreading, try to clean up the location as quickly as possible and notify emergency response personnel.
Subsection 6.3. Methods and material for containment and cleaning up:	Evacuate the area, if it is safe to do so. If not, close all windows and switch off any extraction fans or electrical appliances. Trained personnel should isolate the source of spill as soon as possible. Ventilate area of spill or leak. Remove ignition sources. Use water sprays to combat gas clouds. Take care to avoid contamination of watercourses. Inform appropriate authorities in case of accidental contamination of watercourses or drains.
Subsection 6.4. Reference to other sections:	See <i>Subsection 8.2. Exposure controls and personal protection</i> for information on protective equipment. For information on waste treatment see <i>Section 13. Disposal considerations</i> .

SECTION 7. HANDLING AND STORAGE

Subsection 7.1. Precautions for safe handling:

Information on safe handling of the chemical substance:

- follow the operating instructions of use;
- wear full protective equipment;
- avoid skin and eye contact and inhalation of vapours;
- provide adequate ventilation.

Handling of incompatible chemical substances or mixtures:

Avoid ignitable materials and organic substances.

Ensure that the fertilizer is not stored near hay, straw, grain, diesel oil, etc.

Information on handling in case of release of the chemical substance to the environment:

- control atmospheric levels for compliance with occupational exposure limits;
- personal protective equipment and firefighting equipment should always be at hand;
- clean up the location as quickly as possible and notify emergency response personnel.

General occupational hygiene:

- do not eat, drink or smoke in work areas;
- wash hands after use;
- remove contaminated clothing and protective equipment before exiting the work areas;

Subsection 7.2. Conditions for safe storage, including any incompatibilities:

Technical conditions: The facility used for storage must meet the requirements stated in 'Regulations of technical norms on handling and storage of solid fertilizers containing ammonium nitrate' ('The Official Journal of the SFRY' no. 55/91 – the provisions of art. 3 par. 5 and 6 of these Regulations cease to be effective upon the entry into force of the Regulations issued in 'The Official Gazette of the RS' no. 70/2010).

Storage conditions: The stored product must not be directly exposed to sunlight in order to avoid physical damage due to thermal decomposition. Keep away from sources of heat or fire. Keep away from ignitable materials and organic substances. Ensure that the fertilizer is not stored near hay, straw, grain, diesel oil, etc. There should be no significant variations in temperature and humidity. The storage area must be dry and well-ventilated. Smoking and the use of open flame in the storage area are prohibited.

The stacks of bags should be up to 2 m high and kept at the 1m distance from the walls.

Storage in asut condition:

The product in bulk stored in enclosed dry and ventilated areas, under a pile of warehouses and storage products cover PE or PE / PP foil. In case that different types of fertilizers or materials

	<p>other than fertilizers are stored in the same building, take care to separate them properly in order to avoid contamination. Pay particular attention to their compatibility, including the case of fire.</p> <p><u>Storage of packaged fertilizers:</u> Each record must have a wide enough passage for the access of vehicles to facilitate removal in case of emergency. Do not store different types of fertilizers in the same style. Do not store fertilizer in the same style with any product that is not used for fertilization. Bagged fertilizers can be stored outside as well. In case of <u>outdoor storage</u>, the product can be protected against sunlight using white plastic foil.</p> <p><u>Reactions of ammonium nitrate with construction materials:</u> Incompatible materials for storage are ignitable materials, reducing agents, acids, alkalies, sulphur, chlorates, chlorides, chromates, nitrites, permanganates, metallic powder, substances containing metallic powders such as copper, nickel, cobalt, zinc and their alloys.</p> <p><u>Electrical equipment:</u> electrical installation resistant to ammonia vapours is required.</p>
Subsection 7.3. Specific end use(s):	Professional use only, in accordance with the prescribed operating instructions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL

Subsection 8.1. Control parameters:	<p>No specific official limits; it is necessary to avoid high dust concentration and provide ventilation of the storage area.</p> <p>The mixture does not contain substances with hazardous properties; DNEL/PNEC values are not determined.</p> <p><i>Data refer to ammonium nitrate:</i> <u>Derived no-effect level (DNEL), data refer to ammonia:</u> DNEL (short term exposure, skin - workers): 21,3mg/kg DNEL (long term exposure, inhalation - workers): 37,6 mg/m³ / ECHA-European Chemicals Agency/ <u>Predicted no-effect concentration (PNEC), data refer to ammonia:</u> PNEC (water): 0,45 mg/l / ECHA-European Chemicals Agency/</p>
Subsection 8.2. Exposure controls and personal protection:	<p><u>Appropriate engineering controls:</u></p> <ul style="list-style-type: none"> • provide ventilation in work area, • eyewash stations with fresh water are required (these places must be clearly marked),

Personal protection:

Eye/face protection: Safety glasses/face-shield

Skin protection: Wear overalls and suitable boots. Protective gloves (rubber gloves).

Respiratory protection: Use facemask. In case of high dust concentrations use respirators.

Environmental Exposure Controls:

Environment exposure control should be performed in accordance with the applicable regulations.

SECTION 9. PHYSICAL AND CHEMICAL

Subsection 9.1. Information on basic physical and chemical properties:

a) appearance-physical state and colour:	White solid granules
b) odour:	Odourless
v) odour treshold:	Data not available
g) pH:	>4.5
d) melting point/freezing point:	169.7°C (<i>Data refer to ammonium nitrate</i>) 197°C, at 1013hPa (<i>Data refer to MAP</i>)
đ) initial boiling point and boiling range:	>210°C
e) flash point:	Not flammable
ž) evaporation rate:	Data not available
z) flammability:	Not flammable
i) upper/lower flammability or explosive limits:	Data not available
j) vapour pressure:	0.0147 Pa, at 20°C (<i>Data refer to MAP</i>)
k) vapour density:	Data not available
l) relative density:	In bulk, 900-1100 kg/m ³
lj) solubility:	Soluble in water, except calcium carbonate. Hygroscopic.
m) partition coefficient: n-octanol/water:	Not relevant, this is an inorganic substance
n) auto-ignition temperature:	Not auto-ignitable, but supports combustion.
nj) decomposition temperature:	>210°C

o) viscosity:	Data not available
p) explosive properties:	Not explosive
r) oxidising properties:	No oxidising properties
Subsection 9.2. Other information:	Data not available

SECTION 10. REACTIVITY AND STABILITY

Subsection 10.1. Reactivity	NPK fertilizer is not flammable or explosive. Stable if kept in original containers in storage areas with natural ventilation and if protected against fire, ignition sources, wet floors and exposure to the atmosphere.
Subsection 10.2. Chemical stability	The fertilizer is stable under the prescribed conditions of storage, handling and use.
Subsection 10.3. Possibility of hazardous reactions	In contact with strong bases may give off ammonia gas.
Subsection 10.4. Conditions to avoid	<ul style="list-style-type: none"> -Contamination by inadequate materials. -Unnecessary exposure to the atmosphere. -Closeness to sources of heat or fire. -Welding/hot work or similar works on equipment or in plant where the fertilizer is stored without prior thorough clean up and removal of all residues of the previously stored fertilizer.
Subsection 10.5. Incompatible materials	Ignitable materials, reducing agents, acids, alkalis, sulphur, chlorates, chlorides, chromates, nitrites, permanganates, metallic powders, substances containing metallic powders such as copper, nickel, cobalt, zinc and their alloys.
Subsection 10.6. Hazardous decomposition products	In contact with alkaline materials such as lime may give off ammonia gas.

SECTION 11. TOXICOLOGICAL INFORMATION

Subsection 11.1. Information on toxicological effects:	
a) acute toxicity:	<p><i>Data refer to ammonium nitrate:</i></p> <ul style="list-style-type: none"> -oral (LD₅₀): 2950 mg/kg (mouse) -inhalation (LC₅₀): >88,8mg/l, 4h (rat) -skin (LD₅₀): >5000 mg/kg (rat) <p>/source: ECHA-European Chemicals Agency/</p> <p><i>Data refer to MAP:</i></p> <ul style="list-style-type: none"> -oral (LD₅₀): >2000 mg/kg (rat) -inhalation (LD₅₀): >5000 mg/m³ (rat) -skin (LD₅₀): >5000 mg/kg (rat)
b) skin corrosion/irritation:	Does not cause irritation or skin burns.

v) serious eye damage/irritation:	Does not cause eye irritation.
g) respiratory or skin sensitization:	The substance is not classified as respiratory tract sensitizer
d) germ cell mutagenicity:	Based on available data, the classification criteria are not met.
đ) carcinogenicity:	Based on available data, the classification criteria are not met.
e) reproductive toxicity:	Based on available data, the classification criteria are not met.
ž) STOT – single exposure:	The substance is not classified.
z) STOT – repeated exposure:	The substance is not classified.
i) aspiration hazard:	No aspiration hazard
Subsection 11.2. Information on likely routes of exposure:	- skin exposure: redness of the skin and itching - eye exposure: lacrimation - peroral: irritation of the nose and throat - inhalation: irritation of the nose and throat, cough
Subsection 11.3. Symptoms related to the physical, chemical and toxicological characteristics:	See Subsection 4.2. <i>Most important symptoms and effects, both acute and delayed</i>
Subsection 11.4. Delayed and immediate effects, as well as chronic effects from short and long term exposure:	See Subsection 4.2. <i>Most important symptoms and effects, both acute and delayed</i>
Subsection 11.5. Interactive effects:	Data not available
Subsection 11.6. Absence of specific data:	All the available and relevant data are shown
Subsection 11.7. Mixture versus substance information	The substances in the mixture may interact causing eye irritation; in case of sensitive skin, redness and itching may occur; inhalation and ingestion may lead to nose and throat irritation.
Subsection 11.8. Other information:	All the available and relevant data are shown

SECTION 12. ECOLOGICAL INFORMATION

Subsection 12.1. Toxicity:

- aquatic organisms:

Data refer to ammonium nitrate:

fish:

*LC₅₀=420-1360 mg/l, 96h - causes death
(Oncorhynchus mykiss - Rainbow trout)

daphnia:

* EC₅₀=555 mg/l, 48h - causes death
(Daphnia magna)

algae:

* EC₅₀=83 mg/l, 48h - causes death
(Scenedesmus quadricauda)
/ ECHA-European Chemicals Agency/

Data refer to MAP:

fish:

*LD₅₀ > 85,9 mg/l, 96h
(freshwater fish)

mussel:

* EC₅₀=1790 mg/l

algae:

* EC₅₀>100 mg/l

- soil organisms:

Data not available

- plants and terrestrial organisms:

Data not available

Subsection 12.2. Persistence and degradability:

- biodegradation:

Data not available

- other processes of degradation:

In the natural nitrification/denitrification cycle:
- nitrogen or nitrogen oxides are released,
- phosphates are converted to calcium, ferro or aluminium phosphates, or are incorporated into the organic soil matter,
- potassium is mainly absorbed by clay minerals, or remains in the soil as K⁺ ion.

- degradation in wastewaters:

Substantially biodegradable in water.

Subsection 12.3. Bioaccumulative potential:

The substance has no potential for bioaccumulation.

Subsection 12.4. Mobility in soil:

The NO₃⁻ ion is mobile. The NH₄⁺ ion is absorbed by soil particles. Phosphates, whether water or citrate soluble, are absorbed in the soil only on the surface. The dissolved K⁺ ion in the soil is absorbed by clay minerals, and only in light soils where clay minerals are absent, it can partially be leached.

Subsection 12.5. Results of PBT and vPvB assessment:

The substance is not classified as PBT, or as vPvB.

Subsection 12.6. Other adverse effects:

Low toxicity to aquatic life.

SECTION 13. DISPOSAL CONSIDERATIONS

Subsection 13.1. Waste treatment methods:

Waste generation should be prevented or reduced to minimum wherever possible. Disposal of this product, its solutions and any by-products must always be performed in accordance with the laws on environmental protection, laws on waste management and all the local requirements.

SECTION 14. TRANSPORT INFORMATION

Subsection 14.1 Transport information:

Not classified, considered a non-hazardous material as per the international transport codes, i.e. ADR /RID/ADN.

SECTION 15. REGULATORY INFORMATION

Subsection 15.1. Safety, health and environmental regulations:

- Law on chemicals (The Official Gazette of the RS, no. 36/09)
- Law on waste management (The Official Gazette of the RS, no. 36/09 and 88/10)
- Regulation on classification, packaging, labelling and advertising of chemical and certain article in accordance with Globally harmonized system of classification and labelling of the UN (The Official Gazette of the RS, no. 64/10, 26/11, 5/12 and 105/13)
- Regulations on storage, packaging and labelling of hazardous waste (The Official Gazette 92/10)
- Regulations on conditions and manner of collection, transport, storage and treatment of waste which is to be used as secondary raw material or for obtaining energy (The Official Gazette 98/10)
- Regulations on the contents of safety data sheet (The Official Gazette of the RS, no. 100/11)
- List of classified substances (The Official Gazette of the RS, no. 48/14)

Subsection 15.2. Chemical safety assessment:

Not performed

SECTION 16. OTHER INFORMATION

Subsection 16.1. Indication of changes:	<p>This safety data sheet has been significantly changed and amended in terms of form and contents in accordance with:</p> <ul style="list-style-type: none"> - Regulations on the contents of safety data sheet (The Official Gazette of the RS, no. 100/11) - Regulation on classification, packaging, labelling and advertising of chemical and certain article in accordance with Globally harmonized system of classification and labelling of the UN (The Official Gazette of the RS, no. 64/10, 26/11, 5/12 and 105/13) - Regulation on preventive measures for safe and healthy work when exposed to chemicals (The Off. Gaz. of the RS 106/2009) -Rulebook on closer conditions for keeping of hazardous chemical in retail facilities and manner of labelling of such facilities (The Official Gazette of the RS 31/2011 and 16/2012)
Subsection 16.2. List of abbreviations and acronyms:	<p>ADNR European Agreement concerning the International Carriage of Dangerous Goods by inland Waterways ADR European Agreement concerning the International Carriage of Dangerous Goods by Road CAS Chemical Abstract Service DNEL Derived No Effect Levels EC number European Commission number ECHA European Chemicals Agency EC₅₀ half maximal effective concentration IUCLID International Uniform Chemical Information Database IMDG International Maritime Dangerous Goods LC₅₀ Lethal concentration 50% LD₅₀ Lethal Dose 50% OSHA Occupational Safety and Health Administration PBT Persistence Bioaccumulation potential and Toxicity PNEC Predicted No Effect Concentration ppm parts per million RID International Rule for Transport of Dangerous Substances by Railway STEL Short-Term Exposure Limit TWA Time Weighted Averages vPvB Very persistent and very bioaccumulative</p>
Subsection 16.3. Literature references and sources of data:	<p>/ ECHA-European Chemicals Agency/ /„IUCLID Dataset“ European Chemicals Bureau/ /OECD Existing Chemicals Database / / Regulation on preventive measures for safe and healthy work when exposed to chemicals (The Off. Gaz.of the RS 106/2009)/ / Transport regulations according to ADR, RID,IMDG and ADN including the amendments / /Occupational Medicine, prof.dr.Mirjana Arandelović and prof.dr.Jovica Jovanović, Faculty of medicine, University of Niš, 2009/</p>
Subsection 16.4. List of relevant hazard statements and precautionary statements:	<p><u>Hazard statements – physical hazards:</u> H272: May intensify fire; oxidizer <u>Hazard statements – health hazards:</u> H319: Causes serious eye irritation <u>Precautionary statements-prevention:</u> P210: Keep away from heat/sparks/open flames/hot surfaces –No</p>

	<p>smoking</p> <p>P220: Keep away from combustible materials</p> <p>P221: Take any precautions to avoid mixing with combustibles</p> <p>P264: Wash hands thoroughly after handling</p> <p>P280: Wear protective gloves/protective clothing/eye protection/face protection</p> <p><u>Precautionary statements - response:</u></p> <p>P305+ P351+P338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.</p> <p>P370+P378: IN CASE OF FIRE: Use water for extinction.</p> <p>P337+ P313: If eye irritation persists: Get medical advice/attention.</p> <p><u>Precautionary statements - disposal:</u></p> <p>P501: Dispose of contents in accordance with the Regulations on storage, packaging and labelling of hazardous waste (The Official Gazette 92/10)</p>
<p>Subsection 16.5. Advice on appropriate training for employees:</p>	<p>Act in accordance with the applicable regulations regarding the occupational safety and health.</p>

The information indicated is based on the knowledge and experience up to the date of the compilation of the Safety Data Sheet. The purpose of this Safety Data Sheet is to highlight the precautionary and safety measures regarding this product.

"HIP-AZOTARA" does not assume any responsibility for the information out of the scope of what is written here. The Safety Data Sheet shall not by any means be considered a guarantee for the marketability and the use of the product for certain purposes.

It is the responsibility of the user to inspect and examine the product in order to verify personally whether the product is suitable for a particular purpose. Furthermore, the user is responsible for handling, storage and use of this product in accordance with the applicable laws and regulations ensuring the occupational safety and health and environmental protection.

The information in this Safety Data Sheet refers exclusively to our products, and on condition that the products are not used together with the third parties' materials.