Safety Summary

This Product Safety Summary is intended to provide a brief overview of the information on the risk assessment results of the chemical product that we manufacture based on the chemical industry’s Global Product Strategy (GPS) to the general public as a social responsibility of chemical manufacturer

**Compound Nitrophosphate Sulphur-containing Fertilizer**
**Grade 20:20**

This safety summary is provided within the scope of ICCA Global Product Strategy (GPS) to provide to the general public.

GPS safety summary includes explanations on the possible chemical hazards and/or exposure scenarios, as well as information on safe handling and risk management.

This summary is not intended to provide technical information on emergency actions, medical information or information on treatment in case of exposure.

1. General information

Producer: EuroChem-BMU
Address: Chemical Site Belorechensk, Krasnodar Territory, 352636, Russia
Tel.: +7 (86155) 7 45 12
Fax: +7 (86155) 7 45 12
E-mail: EuroChem-BMU@eurochem.ru

2. Substance identification

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Compound Nitrophosphate Sulphur-containing Fertilizer Grade 20:20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Name:</td>
<td>Compound Nitrophosphate Sulphur-containing Fertilizer</td>
</tr>
<tr>
<td>Chemical Name</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Other names</td>
<td>NP(S) fertilizer</td>
</tr>
<tr>
<td>CAS-No</td>
<td>Not applicable</td>
</tr>
<tr>
<td>EC-No</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

3. Product Description and Uses

Produced by neutralizing of phosphoric and sulphur acids mixture with ammonia. Production form – granules. NP(S) fertilizers is water soluble, 100% friable, non-hygroscopic, with equalized granulometric composition, non-dust forming and practically free of foreign substances. This fertilizer is valuable for fertilizer blending, and better comparing to MAP, regarding phosphor solubility and high nitrogen concentration. Fertilizer is very effective for spring barley, corn, oilseed rape and sunflower on the soils with low and medium degree of phosphorus moving and sulfur deficiency.
## Main constituents

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Concentration, wt. %</th>
<th>CAS-No</th>
<th>EC-No / Registration number</th>
<th>GHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium sulphate</td>
<td>56 – 58</td>
<td>7783-20-2</td>
<td>231-984-1 / 01-2119455044-46-0013</td>
<td>Not classified</td>
</tr>
<tr>
<td>Ammonium dihydrogenorthophosphate</td>
<td>27 – 29</td>
<td>7722-76-1</td>
<td>231-746-5 / 01-2119488166-29-0003</td>
<td>Not classified</td>
</tr>
<tr>
<td>Diammonium hydrogenorthophosphate</td>
<td>5.5 – 7</td>
<td>7783-28-0</td>
<td>231-987-8 / 01-2119490974-22-0001</td>
<td>Not classified</td>
</tr>
<tr>
<td>Urea</td>
<td>2.5 – 2.9</td>
<td>57-13-6</td>
<td>200-315-5</td>
<td>Not classified</td>
</tr>
<tr>
<td>Ammonium nitrate</td>
<td>2 – 2.5</td>
<td>6484-52-2</td>
<td>229-347-8</td>
<td>Oxid. Solid 3, H272; Eye Irrit. 2, H319</td>
</tr>
<tr>
<td>Magnesium hydrogenorthophosphate</td>
<td>3 – 8</td>
<td>7757-86-0</td>
<td>231-823-5</td>
<td>Not classified</td>
</tr>
<tr>
<td>Calcium sulfate</td>
<td>1 – 3</td>
<td>7778-18-9</td>
<td>231-900-3</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

## 4. Physical/Chemical Properties

- **Physical state**: Granulated
- **Colour**: White, light grey
- **Odor**: Faint
- **Explosive properties**: Non explosive.
- **Flammability**: Non flammable.
- **Oxidizing properties**: Non oxidizing
- **Bulk density**: ~1000 kg/m³, depends on granulometry
- **Melting point/range**: 130 ºC
- **Water solubility**: 340 g/l at 25 ºC
- **Viscosity, dynamic**: Not applicable. The product is a solid at room temperature. Viscosity is only relevant to liquids.
- **Viscosity, kinematic**: Not applicable. The product is a solid at room temperature. Viscosity is only relevant to liquids.

## 5. Health Information

5.1 DNEL (Derived No-Effect Level)/DMEL (Derived Minimal Effect Level) for workers

- **Inhalation - Acute - systemic effects, mg/m³**: 5.082 (Calcium sulphate)
- **Inhalation - long-term - systemic effects, mg/m³**: 6.1 (Ammonium dihydrogenorthophosphate)
  - 6.1 (Diammonium hydrogenorthophosphate)
  - 11.167 (Ammonium sulphate)
  - 21.17 (Calcium sulphate)

- **Dermal - long-term - systemic effects, mg/kg bw day**: 34.7 (Diammonium hydrogenorthophosphate)
  - 34.7 (Ammonium dihydrogenorthophosphate)
  - 42.667 (Ammonium sulphate)

DNEL (Derived No-Effect Level)/DMEL (Derived Minimal Effect Level) for consumers
Inhalation - Acute - systemic effects, mg/m³: 3.811 (Calcium sulphate)
Inhalation - long-term - systemic effects, mg/m³: 1.8 (Ammonium dihydrogenorthophosphate)

1.8 (Diammonium hydrogenorthophosphate)
1.667 (Ammonium sulphate)
5.29 (Calcium sulphate)

Dermal - long-term - systemic effects, mg/kg bw day: 20.8 (Ammonium dihydrogenorthophosphate)

20.8 (Diammonium hydrogenorthophosphate)
1.8 (Diammonium hydrogenorthophosphate)

1.667 (Ammonium sulphate)
5.29 (Calcium sulphate)

Oral - acute - systemic effects, mg/kg bw day: 11.4 (Calcium sulphate)
Oral - long-term - systemic effects, mg/kg bw day: 2.1 (Ammonium dihydrogenorthophosphate)

2.1 (Diammonium hydrogenorthophosphate)
6.4 (Ammonium sulphate)
1.52 (Calcium sulphate)

5.2 Toxicity value
Acute oral toxicity  LD₅₀ (rats) mg/kg: > 2.000 (Ammonium dihydrogenorthophosphate)

> 2.000 (Diammonium hydrogenorthophosphate)
4.250 (Ammonium sulphate)
1.581 (Calcium sulphate)
14.300 (Urea)

Acute dermal toxicity  LD₅₀ (rats) mg/kg: > 5.000 (Ammonium dihydrogenorthophosphate)

> 5.000 (Diammonium hydrogenorthophosphate)
> 2.000 (Ammonium sulphate)

Acute inhalation toxicity LC₅₀ (rats, 4 h), mg/m³: > 5.000 (Ammonium dihydrogenorthophosphate)

> 5.000 (Diammonium hydrogenorthophosphate)
2.610 (Calcium sulphate)

5.3 Irritation/Corrosivity/Sensitization
Non-irritating
Non respiratory or skin sensitizing

5.4 CMR-effects
Mutagenicity: No mutagenic effect
Carcinogenicity: No carcinogenic effect
Reproductive toxicity: No effect
5.5 Specific target-organ toxicity

Specific target organ toxicity after single exposure

Inhalation of dust may cause irritation of respiratory tract.

Specific target organ toxicity after repeated exposure (sub-acute / sub-chronic)
Repeated dose toxicity: (sub-acute/ sub-chronic)

<table>
<thead>
<tr>
<th>Substance</th>
<th>NOAEL (sub-acute; rat): mg/kg bw/day</th>
<th>Route of application:</th>
<th>Exposure time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium dihydrogenorthophosphate</td>
<td>250</td>
<td>oral</td>
<td>6 weeks</td>
</tr>
<tr>
<td>Diammonium hydrogenorthophosphate</td>
<td>250</td>
<td>oral</td>
<td>6 weeks</td>
</tr>
<tr>
<td>Ammonium sulphate</td>
<td>256</td>
<td>oral</td>
<td>52 weeks</td>
</tr>
<tr>
<td>Ammonium nitrate</td>
<td>≥ 1 mg/m³</td>
<td>inhalation</td>
<td>14 days (8 h/day)</td>
</tr>
<tr>
<td>Urea</td>
<td>2 250</td>
<td>oral</td>
<td>12 months</td>
</tr>
</tbody>
</table>

6. Environmental Information

6.1 Predicted No Effect Concentration (PNEC)

PNEC aqua – freshwater, mg/l:
1.7 (Ammonium dihydrogenorthophosphate)
1.7 (Diammonium hydrogenorthophosphate)
0.312 (Ammonium sulphate)

PNEC aqua - marine water, mg/l:
0.17 (Ammonium dihydrogenorthophosphate)
0.17 (Diammonium hydrogenorthophosphate)
0.0312 (Ammonium sulphate)

PNEC aqua - intermittent releases, mg/l:
17 (Ammonium dihydrogenorthophosphate)
17 (Diammonium hydrogenorthophosphate)
0.53 (Ammonium sulphate)

PNEC sediment – freshwater, mg/l: 0.063 (Ammonium sulphate)
PNEC soil, mg/kg soil dw: 62.6 (Ammonium sulphate)
PNEC STP, mg/l: 10 (Ammonium dihydrogenorthophosphate)
10 (Diammonium hydrogenorthophosphate)
16.18 (Ammonium sulphate)
100 (Calcium sulphate)
6.2 Toxicity value

Short-term toxicity to fish (96 h, mg/l):
LC\textsubscript{50} (Oncorhynchus mykiss): > 85.9 (Ammonium dihydrogenorthophosphate)
LC\textsubscript{50} (Cirrhinus mrigala): 1.700 (Diammonium hydrogenorthophosphate)
LC\textsubscript{50} (Oncorhynchus mykiss): 53 (Ammonium sulphate)
LC\textsubscript{50} (Oryzias latipes): > 79 (Calcium sulphate)

Long-term study fish/daphnia and other aquatic invertebrates/aquatic plants:
NOEC (Lepomis macrochirus)(30 days, mg/l): 5.29 (Ammonium sulphate)
NOEC (Hyalella azteca)(10 weeks, mg/l): 3.12 mg/l (Ammonium sulphate)
NOEC (Pseudokirchnerella subcapitata) (3 days, mg/l): 100 (Diammonium hydrogenorthophosphate)
NOEC (Pseudokirchnerella subcapitata) (3 days, mg/l): 100 (Ammonium dihydrogenorthophosphate)
NOEC (Microcystis aeruginosa) (8 days, mg/l): 47 (Urea)

Toxicity to microorganisms EC\textsubscript{50} (mg/l):
EC\textsubscript{50} (Daphnia magna, 48 h): 169 (Ammonium sulphate)
EC\textsubscript{50} (Daphnia magna, 48 h): > 79 (Calcium sulphate)
EC\textsubscript{50} (Daphnia carinata, 72 h): 1.790 (Ammonium dihydrogenorthophosphate)
EC\textsubscript{50} (Daphnia carinata, 72 h): 1.790 (Diammonium hydrogenorthophosphate)

Toxicity to aquatic algae IC\textsubscript{50} (72 h, mg/l):
IC\textsubscript{50} (Pseudokirchnerella subcapitata): > 79 (Calcium sulphate)
IC\textsubscript{50} (Pseudokirchnerella subcapitata): 100 (Diammonium hydrogenorthophosphate)
IC\textsubscript{50} (Pseudokirchnerella subcapitata): > 100 (Ammonium dihydrogenorthophosphate)

6.3 Environmental fate

Phototransformation in air: No data available
Phototransformation in water: No data available
Phototransformation in soil: No data available
Hydrolysis: No data available
Biodegradation in water: screening tests: No data available
Biodegradation in water and sediment: simulation tests: No data available
Biodegradation in soil: No data available
Bioaccumulation: aquatic / sediment: No data available
Bioaccumulation: terrestrial: No data available
Adsorption / desorption: No data available
Henry's Law constant: No data available
PBT and vPvB assessment: No data available

7. Exposure Assessment
See section 11

8. Recommendations on Risk Management
Closed manufacturing processes (if necessary), performance forced-air or local exhaust ventilation at the work zone, use of personal protection equipment. Minimization of quantity of exposed workers. Use of special dispensers and pumps designed to prevent splashes / spills. Effective removal of contaminants. Minimization of manual phases. Avoidance of contact with contaminated tools and objects. Regular cleaning of equipment and work area. Verification of the appropriate use of risk management measures. Ensure high levels of personal hygiene. Inform consumers through labeling.

9. Classification and labelling

9.1 Classification
Classification according to Regulation (EC) No 1272/2008:
Not classified

9.2 Labelling

Labelling according to Regulation (EC) No 1272/2008:
No labelled.

10. Registration information

**Compound Nitrophosphate Sulphur-containing Fertilizer Grade 20-20**

Registration Number: No data available

11. Conclusion

Calculation of exposure and risk assessment was carried out on ammonium dihydrogenorthophosphate as a substance, contribute most to the product

In the Product Safety Summary for risk calculations the following Exposure scenarios are used:

<table>
<thead>
<tr>
<th>Identifiers</th>
<th>Market Sector</th>
<th>Titles of exposure scenarios and the related contributing scenarios</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES1 - M1</td>
<td>Manufacture - Manufacture - Manufacture (ERC 1) - Worker contributing scenario (PROC 1) - Worker contributing scenario (PROC 3) - Worker contributing scenario (PROC 5)</td>
<td></td>
</tr>
<tr>
<td>ES2 - M2</td>
<td>Manufacture - Manufacturing of mineral fertilizers, including maintenance or cleaning - Manufacture (ERC 1) - Worker contributing scenario (PROC 1) - Worker contributing scenario (PROC 2) - Worker contributing scenario (PROC 3) - Worker contributing scenario (PROC 4) - Worker contributing scenario (PROC 5) - Worker contributing scenario (PROC 8a) - Worker contributing scenario (PROC 8b) - Worker contributing scenario (PROC 9)</td>
<td></td>
</tr>
<tr>
<td>ES3 - F1</td>
<td>Formulation - Use of ammonium sulphate in the formulation of fertilizers - Formulation (ERC 2) - Worker contributing scenario (PROC 3) - Worker contributing scenario (PROC 4) - Worker contributing scenario (PROC 5) - Worker contributing scenario (PROC 8a) - Worker contributing scenario (PROC 8b) - Worker contributing scenario (PROC 9)</td>
<td></td>
</tr>
<tr>
<td>ES4 - PW1</td>
<td>Use by professional worker - Professional Use of crop protection products containing the substance - Professional Use (ERC 8a) - Professional Use (ERC 8b) - Worker contributing scenario (PROC 8a) - Worker contributing scenario (PROC 8b) - Worker contributing scenario (PROC 9)</td>
<td></td>
</tr>
</tbody>
</table>
| ES5 - C1 | Consumer Use - Consumer Use  
- Consumer Use (ERC 8e)  
- Consumer contributing scenario (PC 12) |

GPS safety risk calculations performed for production, processing, use and disposal of NP(S) fertilizers and when exposed to the consumer and the environment (in accordance with the ECHA Guidelines on Safety Assessment).

The analysis shows that risks could be adequately controlled through the use of standardized technical, organizational measures, which are designed and operated by EuroChem-BMU.

12. **Contact information**  
For more information on the matter, please contact: [EuroChem-BMU@eurochem.ru](mailto:EuroChem-BMU@eurochem.ru) or visit: [www.eurochemgroup.com](http://www.eurochemgroup.com)

13. **Date of issue**  
02-08-2016

**Note**

For more information on first aid measures, fire fighting, prevention and prevention and elimination of accidents and emergency situations and their consequences, recycling, safe use and transportation and storage rules, refer to the Safety Data Sheet (SDS) for this chemical or chemical product. While the data and information contained herein are presented in good faith and believed to be accurate at the date of printing, it is provided for your guidance only and may be revised in the future. No warranties of any kind, either express or implied, of merchantability, fitness for a particular purpose or of any other nature are made regarding the data or information provided. Further, the Company assumes no obligation or liability whatsoever resulting from use of or reliance on the data and information given. The Company makes no commitment to update or correct any information that appears on the Internet.