NAME:

technical (according to regulatory documents)  Albit liquid paste (active ingredients 6.2 g/kg poly-beta-hydroxybutyric acid, 29.8 g/kg magnesium sulfate, 91.1 g/kg dipotassium phosphate, 91.2 g/kg potassium nitrate, 181.5 g/kg carbamide)

chemical (IUPAC)  n/a

commercial  Biostimulant Albit liquid paste

alternate names  Albit; Biostimulant Albit; Albit, liquid paste; Альбит, ТПС; Neitralin

OKP code:  9 2 9 1 7 1
TN VED code:  3 8 0 8 9 3 9 0 0 0

Regulatory document designation and name (GOST, GOST R, TU, ISO, etc.)

TU 9291-001-18072394-01 (Albit, liquid paste)

HAZARD DESCRIPTION:

Signal word:  None

Brief (verbal): The product is a low-hazard substance in terms of its impact on the organism according to both hygienic classification of pesticides and GOST 12.1.007-76. The product may cause mild eye mucous membranes irritation and prolonged skin exposure can cause a mild allergic reaction.

Detailed: in 16 enclosed sections of the safety data sheet.

MAIN HAZARDOUS COMPONENTS:

<table>
<thead>
<tr>
<th>Component</th>
<th>Maximum permitted concentration in work zone air, mg/m³</th>
<th>Hazard class</th>
<th>CAS No.</th>
<th>EC No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium sulfate</td>
<td>2</td>
<td>3</td>
<td>7487-88-9</td>
<td>231-298-2</td>
</tr>
<tr>
<td>Potassium nitrate</td>
<td>5</td>
<td>3</td>
<td>7757-79-1</td>
<td>231-818-8</td>
</tr>
<tr>
<td>Dipotassium phosphate (dipotassium hydrophosphate)</td>
<td>10</td>
<td>4</td>
<td>7758-11-4</td>
<td>231-834-5</td>
</tr>
<tr>
<td>Urea (carbamide)</td>
<td>10</td>
<td>3</td>
<td>57-13-6</td>
<td>200-315-5</td>
</tr>
<tr>
<td>Poly-beta-hydroxybutyrate (poly-beta-hydroxy butyric acid)</td>
<td>not determined</td>
<td>4</td>
<td>29435-48-1</td>
<td>-</td>
</tr>
</tbody>
</table>

APPLICANT:  Albit LLC, Pushchino, Moscow oblast

Applicant type:  manufacturer, supplier, distributor, exporter, importer

OKPO code:  1 8 0 7 2 3 9 4

Emergency contact number:  +7 (4967) 73-05-39

Head of the applying company:  /K.M. Zlotnikov/

Registered

Russian Public 1 8 0 7 2 3 9 4 . 9 2 . 3 0 9 8 1
dated June 17, 2013
Valid till June 17, 2018

Russian Federal Agency for Technical Regulation and Metrology

"Substance and Material Safety" Information Analysis Center

STANDARTINFORM Federal State Unitary Enterprise

Director /A.D. Kozlov/

(signed, sealed)
Safety data sheet – chemical product safety data sheet (substance, mixture, material, industrial waste)

IUPAC – International Union for Pure and Applied Chemistry


OKP – All-Russian Classification of Products

OKPO – All-Russian Classification of Businesses and Organizations

TNVED – Product List for Foreign Economic Activities

CAS No. – substance number in Chemical Abstracts Service registry

EC No. – substance number in European Chemical Agency registry

MPC w.z. – Maximum permissible concentration of a chemical substance in the working zone air, mg/m$^3$ (maximum single/mean-shift)

This Safety data sheet complies with:

- UN recommendations ST/SG/AC.10/30 “GHS”;

- EC Regulation No.1907/2006 concerning Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), Appendix II

**Signal word:**

- either “Hazard” or “Caution” (or “None”) should be indicated according to GOST 31340-2007 “Warning marking of chemical products. General requirements”
1. Chemical product identification and manufacturer and/or supplier information

1.1. Chemical product identification

1.1.1. Technical designation: Albit liquid paste (active ingredients 6.2 g/kg poly-beta-hydroxybutyric acid, 29.8 g/kg magnesium sulfate, 91.1 g/kg dipotassium phosphate, 91.2 g/kg potassium nitrate, 181.5 g/kg carbamide).

1.1.2. Brief use recommendations: (including use restrictions) Biostimulant Albit is intended for treatment of agricultural plants in order to stimulate growth and development of plants, protect them from diseases and stresses, remedy soils and other environmental media. It can also be used as antidote — an additive to pesticides for reducing pesticide toxicity.

1.2. Manufacturer and/or supplier information

1.2.1. Full official name: Albit Scientific and Industrial Limited Liability Company (Albit LLC)

1.2.2. Mailing address: 142290, Moscow oblast, Pushchino, P.O. box 160

1.2.3. Phone number, including for emergency consultations (office hours): +7 (4967) 73-05-39

1.2.4. Facsimile: +7 (4967) 73-05-39

1.2.5. E-mail: director@albit.ru

2. Hazard (risks) identification

2.1. Overall hazard degree of the product: (information on hazard class subject to the Russian laws (GOST 12.1.007) and GHS (upon approval))

4 class of hazard

2.2. General hygienic rating in work zone air: (MPC w.z. or RSL w.z.)

Not determined. No MPC w.z control is required during application /34/.

2.3. Labeling information (acc. to GOST 31340-07)

2.3.1. Hazard description: None /16/.

2.3.2. Hazard prevention measures: None /16/.

3. Composition (component information)

3.1. 3.1. General product information

3.1.1. Chemical name: none. (C₄H₆O₂)ₙ (n≈60); KNO₃; K₂HPO₄; CON₂H₄; MgSO₄.

3.1.2. Chemical formulas: Biostimulant Albit is a solution and suspension of active (poly-beta-hydroxy butyric acid, dipotassium phosphate, potassium nitrate, magnesium sulfate, urea) and auxiliary substances in water /32/.
3.2. Components
(name, CAS and EC number (if available), mass fraction, MPC w.z. or RSL w.z., classes of hazard, references)

<table>
<thead>
<tr>
<th>Components (name, CAS and EC numbers)</th>
<th>Mass fraction, %</th>
<th>MPC w.z., mg/m³</th>
<th>Class of hazard</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly-beta-hydroxy butyric acid CAS 29435-48-1</td>
<td>0.62±0.42</td>
<td>—</td>
<td>4</td>
<td>34</td>
</tr>
<tr>
<td>Dipotassium phosphate CAS 7758-11-4, EC 231-834-5</td>
<td>&gt;=9.11</td>
<td>10</td>
<td>4</td>
<td>9, 34</td>
</tr>
<tr>
<td>Potassium nitrate CAS 7757-79-1, EC 231-818-8</td>
<td>9.12±4.19</td>
<td>5</td>
<td>3</td>
<td>9, 34</td>
</tr>
<tr>
<td>Magnesium sulfate CAS 7487-88-9, EC 231-298-2</td>
<td>2.97±1.97</td>
<td>2</td>
<td>3</td>
<td>9, 34</td>
</tr>
<tr>
<td>Urea (carbamide) CAS 57-13-6, EC 200-315-5</td>
<td>18.15±3.63</td>
<td>10</td>
<td>3</td>
<td>9, 34</td>
</tr>
<tr>
<td>Auxiliary substances (residues of bacterial biomass, coniferous extract, water) up to 100%</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

4. First aid measures

4.1. Observable symptoms
4.1.1. In case of inhalation poisoning: No specific symptoms.
4.1.2. In case of contact with the skin: No irritant action detected /34/.
4.1.3. In case of contact with eyes: Hyperemia, lacrymation, pain.
4.1.4. In case of oral poisoning (ingestion): No specific symptoms.

4.2. First aid measures
4.2.1. In case of inhalation poisoning: Fresh air, remove personal protective gear /34/.
4.2.2. In case of contact with the skin: Wash affected skin area with soap /34/.
4.2.3. In case of contact with eyes: Wash eyes thoroughly with plenty of water /34/.
4.2.4. In case of oral poisoning: Wash mouth and drink a large quantity of water, flush the stomach /34/.
4.2.5. Contraindications: Not available.
4.2.6. First aid kit: Soap, activated carbon and stomach flushing medication /34/.

5. Fire safety measures and means

5.1. General description of explosion and fire hazard: Biostimulant Albit is explosion and fire safe /32/
5.2. Explosion and fire hazard limits (limits according to GOST 12.1.044 and GOST R 51330.0) Not reached
5.3. Hazard caused by burning and/or thermal destruction products: When heated to over 150°C the product undergoes thermal destruction: product ingredient carbamide is decomposed into carbon dioxide, ammonia and nitrogen oxides; magnesium sulfate emits gaseous SO₃; ester oils of the pine extract are also emitted into the environment. Upon decomposition the PVC container forms chlorine and/or its volatile compounds, in particular
5.4. Recommended fire fighting means:

All available fire fighting means can be used to put out fires: water, sand and fire extinguishers. It is possible to use water delivered via the sprinkler system, foam, dry fire suppression means and carbon dioxide.

5.5. Prohibited fire fighting means:

None

5.6. Means of personal protection used when putting out fires:

(personal protective gear of firefighters):

All available means of personal protection from fire and smoke (protective outfits, gauze masks, gas masks, etc.)

5.7. Firefighting specifications:

None

6. Emergency prevention and control measures

6.1. Emergency prevention pertaining to humans, environment, buildings, constructions, etc.

6.1.1. General recommendations:

Observance of general transportation and storage rules as per. Avoid using the product in doses exceeding recommended doses by 10 or more times. Observe general fire safety.

6.1.2. Personal protective equipment:

(emergency teams and personnel)

ShB-1 "Lepestok" or U-2K respirator, gauze and cotton mask or dust filter of the P2 or FFP2 type (average solid or liquid particles retention capability). Cotton clothing, apron and rubber footwear. Special chemical-resistant gloves (EN 374) suitable for long-term direct contact (with recommended protection index 6, or > 480 minutes of impact time), e.g., gloves made of nitrous resin (0.4 mm), chlorine foam resin (0.5 mm), PVC (0.7 mm), etc. should be used. Goggles with side protection (in rims) as per GOST R 12.4.013.

6.2. Emergency liquidation procedures

6.2.1. Actions in response to leaks, spilled or scattered product:

(localing safety precautions to ensure environmental protection)

Localize the leak. Pump out unabsorbed liquid. Avoid splashing or washing off under high pressure (avoid the formation of aerosols). Collect waste into appropriate containers, label and close them. Apply absorbing material on the spilt product (sand, sawdust or soil). Thoroughly wash contaminated objects and floor with water and detergents observing environmental protection precautions. Prevent release into the sewer/groundwater/surface water.
6.2.2. Actions in case of a fire: The product is nonflammable; none are required.

7. Chemical product handling and storage rules

7.1. Safety measures when handling chemical products

7.1.1. Safety measures and collective protection equipment: When using the product avoid inhaling, contact with eyes or skin and use personal protective gear. While handling the product do not smoke, drink or eat. After the work wash hands and face with soap. Wash special outfits contaminated with the product in a soapy solution; contaminated containers and transport vehicles must be thoroughly rinsed with water.

7.1.2. Environmental protection recommendations: Permitted to enter soil. Prevent release into the sewer/groundwater/surface water.

7.1.3. Safe transportation recommendations: The product can be transported by all types of transport according to the rules applicable to a particular type, with mandatory protection from heat and precipitation.

7.2. Chemical product storage rules

7.2.1. Safe storage terms and conditions: The product must be stored in the packaging of the manufacturer in dry clean ventilated rooms protected from the light at temperatures from minus 20°C to plus 25°C. Product packages can be stored on racks or stacked pallets. Stack height should not exceed 1.5 m. Guaranteed shelf life is 3 years from manufacture date.

7.2.2. Not to be stored together with substances and materials: Food, medications and household chemicals.

7.2.3. Materials recommended for containers and packaging: Plastic canisters or flasks made of polyethylene or high-density polyethylene or polyvinylchloride (PVC) with the following volumes: 0.5 ml (net weight 0.7 g), 10.0 ml (13.0 g), 25.0 ml (32.5 g), 38.5 ml (50.0 g), 50.0 ml (65.0 g), 76.9 ml (100.0 g), 100.0 ml (130.0 g), 192.3 ml (250.0 g), 250.0 ml (325.0 g), 500.0 ml (650.0 g), 769.2 ml (1,000.0 g), 1,000.0 ml (1,300.0 g), 5,000.0 ml (6,500.0 g), 7,692.3 ml (10,000.0 g) and 10,000.0 ml (13,000.0 g).
packed in cardboard boxes. Volume (net weight) 0.5-10 cm³.

Precautions - see item 7.1. Do not use food-grade utensils to prepare the working solution. The product must be stored separately from food and medications, away from direct sources of fire in a cool place inaccessible to children or animals.

8. Hazardous exposure control and personal protective equipment

8.1. Working zone parameters subject to mandatory control (MPC w.z. or SRL1 w.z.)

Monitoring of MPC w.z. is not required during application.

8.2. Measures for ensuring hazardous substances remain within permitted concentrations:

During storage: ventilate rooms and use airtight containers. Production premises should be equipped with general supply and exhaust ventilation and local ventilation.

8.3. Personal protection means

8.3.1. General recommendations:

Avoid contact with skin, eyes or clothing, use personal protective gear. Product may cause irritation in case of contact with eyes. After using the product wash the hands and/or face with soap. Store away from food, drinks or feedstock. Do not eat, drink or smoke while working. May not be used by persons with chronic inflammatory diseases of respiratory organs, eyes, skin, gastrointestinal tract, kidneys and liver; persons prone to allergic reactions, pregnant women and persons under 18 years of age.

8.3.2. Protection of respiratory organs (types of respiratory protective devices):

ShB-1 "Lepestok" or U-2K respirator, gauze and cotton mask or dust filter of the P2 or FFP2 type (average solid or liquid particles retention capability).

8.3.3. Protective clothing (material, type):

Cotton clothing, apron and rubber footwear. Special chemical-resistant gloves (EN 374) suitable for long-term direct contact (with recommended protection index 6, or > 480 minutes of impact time), e.g., gloves made of nitrous resin (0.4 mm), chlorine foam resin (0.5 mm), PVC (0.7 mm), etc. should be used. Goggles with side protection (in rims) as per GOST R 12.4.013 should be used.
### 8.3.4. PPE when handling in households:

Do not use food-grade utensils to prepare the working solution. Apply in the absence of children or animals. Wear special cotton clothing, protective goggles, gloves and a respirator. While handling the product do not smoke, drink or eat. After work wash hands and face with soap. First aid: in case of contact with skin wipe off the product without rubbing in with a piece of cloth, wash skin using water and soap; in case of contact with the eyes thoroughly rinse with water; in case of ingestion drink 3 glasses of water with activated carbon (5 or 6 tablets per glass). If required consult a physician.

### 9. Physical and chemical properties

**9.1. Physical condition:** (aggregate state, color, smell)

Brown liquid paste. Faint pine smell.

**9.2. Parameters characterizing main properties of the substance (material), mainly hazardous ones:**

- Water solution pH is 6.5±1.0 (1% concentration).
- Density (g/cm³) at 20°C is 1.3±0.2.
- Solubility – unlimited solubility in water; it forms colloidal and molecular solution.
- Mass fraction of solid residue: 52.9±18.0.
- Mass fraction magnesium sulfate: 2.97±0.59%.
- Stability of the 1% water suspension: not less than 60%.
- Viscosity: 0.9 micropoise.

It precipitates in an alkaline environment (at pH > 8.5)

Nonflammable, incapable of self-combustion and non-volatile. It has a corrosive impact on aluminum.

### 10. Stability and chemical activity

**10.1. Stability:**

(specify decomposition products for non-stable products)

The product is stable for 3 years provided that storage and transportation conditions are observed. Water solution is stable for 1 day.

**10.2. Reactivity:**

Poly-beta-hydroxy butyric acid is an inert polymer; most probable decomposition path is the hydrolysis by means of microbial and plant ferments with the formation of acetyl-Co-A. Dipotassium phosphate, potassium nitrate and magnesium sulfate practically entirely dissociate into ions in an aqueous environment. Potassium and magnesium ions are actively absorbed by soil absorbing complex and other cation absorbents. During hydrolysis hydrogen phosphate ion forms an equilibrium mixture of ions (phosphate, hydrogen phosphate and dihydrogen phosphate) that can form poorly soluble compounds, especially with bivalent and trivalent metals. The same applies to the sulfate ion. The nitrate is readily metabolized by plants and microorganisms; and through microbial transformation (especially in microaerophilic conditions in the presence of an organic substance) is restored to molecular nitrogen and its oxides. Thanks to the unpaired electron pair of the ni-
10.3. Conditions to be avoided:
(including hazardous manifestations at contact with non-compatible substances and materials)

Precipitates in an alkaline environment (pH > 8.5). Has a corrosive effect on aluminum. Hazardous products of decomposition are not known.

11. Toxicity

11.1. General impact description:
(assessment of hazard level (toxicity))

Biostimulant Albit according to the hygienic classification of pesticides and GOST 12.1.007-76 belongs to Hazard Class 4; it is a low-hazard substance in terms of its impact on the human body and warm-blooded animals 12. May cause irritation in case of contact with eyes (threshold product concentration for irritant effect is 25 %). Long-term contact with the skin may cause mild allergic reactions.

11.2. Routes:
(inhalation, oral, when contacting skin and eyes)

11.3. Affected organs, tissues and systems in humans:

Potassium nitrate: reddening and itching of the skin, irritation of eye mucous membranes and the gastrointestinal tract. Dipotassium phosphate: irritation of eye mucous membranes and skin. Magnesium sulfate: irritation of eye mucous membranes and skin. Urea: irritation of eye mucous membranes and skin.

11.4. Information about harmful impacts upon direct contact with the substance and consequences of such impacts:
(irritation of the upper respiratory tracts, eyes and skin including percutaneous effect and allergizing effect)

Irritant effect on rat skin upon one-time (4 hours) and multiple applications (20 applications, 4 hours/day each for 30 days) was not detected. No percutaneous effects were detected. Minor allergic effect is possible in case of long-term contact with skin.

The product irritates eye mucous membranes (the degree of irritation is evaluated as a minor one). When dissolved with water 4 times or more irritant effect is absent. No percutaneous effects were detected. Minor allergic effect is possible in case of long-term contact with skin.

Irritant effect on rat skin upon parenteral administration to guinea pigs in terms of phagocyte activity of peritoneal macrophages and T- and B-lymphocytes levels of the blood was detected.
11.5. Information about dangerous long-term effects on the organism:

Possible effects of product components:
potassium nitrate has an embryotoxic effect on rats (5.9-10.0 mg/kg). Carbamide – urea introduction into the placenta may cause a miscarriage. Magnesium sulfate fed to pregnant rats in daily doses of 150 mg/kg causes acute toxic and emryotoxic effect.

Cumulative properties of Biostimulant Albit:
Sub-acute inhalation toxicity. Albit is not a marked inhalation hazard as the prepared formulation (paste) and product components are nonvolatile; the product is low-toxic in case of oral ingestion (hazard class 4) or inhalation (hazard class 3-4).

Sub-acute skin toxicity. No percutaneous effect on rats following 20 applications of 4 hours/day for 30 days in doses of 6500 mg/kg/day was detected in a general health assessment of the animals, hematological and biochemical blood tests, urine tests and pathomorphological tests.

Sub-acute oral toxicity. The cumulative effect of Albit in the tests on rats upon intra-gastric administration in doses of 2800 mg/kg (1/10 LD50) daily 5 times per week for 2 months was not pronounced; no animal mortality occurred and the cumulative coefficient was not established. Based on clinical observations of the general health condition of the animals, hematological and biochemical blood tests, urine tests and pathomorphological tests no significant changes compared to the reference subjects were detected. Albit does not have a cumulative effect /34/.

Acute toxicity indicators:
(DL50, routes (weight, n/k), animal species;
CL50, exposure time (h), animal species)

LD50 rats (orally) – 28060 mg/kg, LD50 mice (orally) – 17780 mg/kg.
LD50 rats (skin contact) - > 6500 mg/kg,
LD50 rats (inhalation) - > 4166 mg/m³

11.6. Acute toxicity indicators:
(_DL50_, routes (weight, n/k), animal species;
_C50_, exposure time (h), animal species)

11.7. Doses (concentrations) with minimum toxic effect:

25 % solution /34/.

12. Environmental impact

12.1. General environmental impact description:
(atmospheric air, water, soil)

Product ingredients do not pose a threat to the natural environment. The product is a low hazard to bees (Hazard Class 4) /33/ It is low-toxic for aquatic organisms (SRLI 1.5 mg/l) /34/; it is readily metabolized by aquatic organisms. Decomposition rate DT50 = 6 to 14 days (for urea). In soil the product is quickly decomposed into nontoxic naturally occurring components that are widespread in the natural environment /19/. The product can impair growth of fungi and other pathogenic objects on roots and in plant tissues through its extensive immunizing effect.

12.3. Observed signs of impact: When the product enters the environment there is a faint pine smell. Contact with water results in turbidity and in formation of a brown suspension that disappears after several days.

12.4. Primary environmental impact data

12.4.1. Hygienic ratings:
(permmissible concentrations in the atmospheric air, water bodies including fishery water bodies, soil)

<table>
<thead>
<tr>
<th>Components</th>
<th>MPC atmospheric air / SRLI atmospheric air, mg/m$^3$ (LHI$^1$, hazard class)</th>
<th>MPC water$^2$ / APL water, mg/l, (LHI, hazard class)</th>
<th>MPC fish.$^3$ / SRLI fish, mg/l (LHI, hazard class)</th>
<th>MPC soil, mg/kg (LHI)</th>
<th>Data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly-$\beta$-hydroxy butyric acid</td>
<td>(n/r)/(n/r) (n/r, −)</td>
<td>(n/r)/(n/r) (n/r, −)</td>
<td>(n/r) (n/r, −)</td>
<td>(n/r) − not required, standards are given acc. to /3, 4, 5, 6, 7, 34, 35/.</td>
<td></td>
</tr>
<tr>
<td>Dipotassium phosphate</td>
<td>0.1/0.02 (n/r, −)</td>
<td>3.5/(n/r) (n/r, −)</td>
<td>10 (st.t., 4)</td>
<td>27.2/ (n/r) (n/r, −)</td>
<td></td>
</tr>
<tr>
<td>Potassium nitrate</td>
<td>0.2/(n/r) (n/r, 4)</td>
<td>45/(n/r) (n/r, −)</td>
<td>130 (n/r, −)</td>
<td>n/r</td>
<td></td>
</tr>
<tr>
<td>Magnesium sulfate</td>
<td>(n/r)/0.04 (n/r, −)</td>
<td>500/(n/r) (n/r, −)</td>
<td>n/r</td>
<td>n/r</td>
<td></td>
</tr>
<tr>
<td>Urea</td>
<td>0.2 (n/r, 4)</td>
<td>(n/r)/(n/r) (n/r, −)</td>
<td>n/r</td>
<td>n/r</td>
<td></td>
</tr>
</tbody>
</table>

12.4.2. Environmental toxicity:
(CL, EC for fish, Daphnia magna, algae, etc.)

Albit is not toxic or it poses a low hazard to warm-blooded animals, bees, fishes and other aquatic organisms, plants and soil organisms (hazard class 3 or 4) /19, 24, 34, 35/. In soil and plants the product is quickly decomposed into nontoxic elements /19/.

**Soil microorganisms:**
Albit does not have a toxic effect on soil microorganisms. On the contrary, it has been noted to stimulate biological activity of both soil in general and the root zone in particular (the total number of microorganisms in the soil and on plant roots increases, so does the total number of non-spore-forming bacteria and nitrogen-fixing bacteria in the rhizosphere) /19/.

**Fish:**
NOEC (Cyprinus carpio) = 500 mg/l /19/.

MPC of Biostimulant Albit for commercial fishery ponds is 1.0 mg/l. In terms of the degree of its impact on water biocenoses Albit belongs to hazard class 4. Limiting harm indicators are health and toxicological ones. For purposes of expert assessment of the environmental risk for applying biostimulant Albit liquid

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1 LHI – limiting harmful index (tox. – toxicological; – sanitary-toxicological; org. – organoleptic; refl. – reflectory; res. – resorptive; refl.-res. – reflectory-resorptive, fish. – fishery (change of commercial properties of commercial aquatic organisms); gen. – general sanitary).

2 Water of water bodies of household water and cultural and general use.

3 Water of water bodies of commercial fishing importance (including marine).
12.4.3. Migration and transformation in the environment due to biodegradation and other processes (oxidation, hydrolysis, etc.):

Poly-β-hydroxybutyrate is an inert polymer; most probable decomposition path is hydrolysis by means of microbial and plant ferments with the formation of acetyl-Co-A. Dipotassium phosphate, potassium nitrate and magnesium sulfate practically completely dissociate into ions in an aqueous environment. Potassium and magnesium ions are actively absorbed by the soil absorbing complex and other cation absorbents. During hydrolysis the hydrogen phosphate ion forms an equilibrium mixture of ions (phosphate, hydrogen phosphate and dihydrogen phosphate) that can form poorly soluble compounds, especially with bivalent and trivalent metals. The same applies to the sulfate ion. Nitrate is readily metabolized by plants and microorganisms and through microbial transformation it is restored to molecular nitrogen and its oxides. Thanks to the unpaired electron pair of the nitrogen carbamide can act as the chelating agent for ions of alkaline-earth metals; and through microbial ammonification is decomposed to ammonium and carbon dioxide /19/.

Nitrate ions (their source is potassium nitrate and carbamide after oxidation of the amide residue) are capable of dissimilation through denitrification (especially in microaerophilic conditions in the presence of excessive organic substance).
13. Disposal of waste (residue)

13.1. Precautions during handling waste resulting from the use, storage, transportation, etc.
Avoid contact with the product; use personal protective gear /1/.

13.2. Information about places and methods of decontamination, disposal or liquidation of product (material) waste including its packaging (containers):
Apply an absorbing material on the spilt product (sand, sawdust or soil), collect it in containers and dispose by burying in soil, at dumpsites for industrial or household waste. Rinse containers thoroughly with water, dispose using thermal destruction or together with household waste /19, 24, 25, 26, 32/. Containers and pesticide residues should be disposed according to /2/.

13.3. Waste disposal recommendations for household use:
Apply absorbing material on the spilt product (sand, sawdust or soil). Bury in soil or dispose together with household waste. Empty containers can be disposed together with household waste /25/.

14. Transportation information

14.1. UN number:
None.

14.2. Proper shipping name and/or transport name:
Biostimulant Albit; Biostimulant Albit, liquid paste

14.3. Types of vehicles used:
Albit to be used as pesticide or agricultural chemical shall be carried by all types of covered vehicles according to the requirements of SanPiN 1.2.2584-10 /29/.

14.4. Hazardous load classification:
Albit is not a hazardous load and does not require special transportation precautions or hazard labeling /15, 28, 32/.

14.5. Transport labeling:
"This side up", "Keep dry", "Fragile", "Stacking limit", temperature range from minus 20 to plus 25°C /15, 32/.

14.6. Packing group:
Not applied.

14.7. Hazard information during transportation by motor vehicles:
Not required /21/.
14.8. Emergency card:  
(for railway, sea and other transportation)  
Not required /23/.

14.9. Hazard information during international freight traffic:  
(acc. to AIGTR, ADR, RID, IMDG Code,  
ICAO/IATA, etc. including environmental hazard information, including on 'sea polluters')  
Not applied.

15. National and international legislation

15.1. National legislation

15.1.1. Russian legislation:
"On safe handling of pesticides and fertilizers", "On certification of products and services", "On the protection of consumer rights", "On environmental protection".

15.1.2. Documents regulating the requirements for the protection of humans and the environment  
(health and sanitary standards, health and sanitary certificates, etc.)  
List of pesticides and agricultural chemicals permitted for use on Russian territory /30/. Current recommendations for product application /24, 25, 26, 27/.

15.2. International legislation

15.2.1. International conventions and treaties:  
(whether the product is governed by Montreal protocol, Stockholm conference, etc.)  
Not applied.

15.2.2. EU warning labels:  
(warning signs, risk phrases, etc.)  
No data.

16. Additional information

16.1. SDS revision information:  
(SDS designed for the first time' or other instance specifying the main reason for SDS revision)  
SDS revision due to expiry of the lifetime.  
Russian Public Library No. 18072394.92.19407 of June 3, 2008

16.2. List of references

Moscow, Khimiya publishers, 1990.

2. Temporary instructions on preparing and burying pesticides that have been prohibited or are unsuitable for application in agriculture and their containers, VNIPargokhim, Ryazan, 1989.

3. Hygiene Norm (HN) 2.1.5.1315-03 "Maximum permissible concentrations (MPC) of chemical substances in the water of water bodies used for household and public water supply" with annexes.

4. Hygiene Norm (HN) 2.1.5.1316-03 "Permissible reference levels (PRL) of chemical substances in the water of water bodies used for household and public water supply" with annexes.

5. Hygiene Norm (HN) 2.1.6.1338-03 "Maximum permissible concentrations (MPC) of contaminants in the atmospheric air of populated areas" with annexes.

6. Hygiene Norm (HN) 2.1.6.1339-03 "Safe Reference Levels of Impact (SRLI) of contaminants in the atmospheric air of populated areas" with annexes.

7. Hygiene Norm (HN) 2.1.7.2041-06 "Maximum permissible concentrations (MPC) of chemical substances in soil".

8. Hygiene Norm (HN) 2.1.7.2042-06 "Permissible reference concentrations (PRC) of chemical substances in soil".

9. Hygiene Norm (HN) 2.2.5.1313-03 "Maximum permissible concentrations (MPC) of contaminants in the air of the work zone" with annexes.

10. Hygiene Norm (HN) 2.2.5.1314-03 "Safe Reference Levels of Impact (SRLI) of contaminants in the atmospheric air of the work zone" with annexes.

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<td>13</td>
<td>GOST 14189-81. Pesticides. Acceptance rules, methods of sampling, packaging, labeling, transporting and storing.</td>
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<td>GOST 14192-96. Labeling of cargo.</td>
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<td>GOST 19433-88. Hazardous cargo. Classification and labeling.</td>
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<td>16</td>
<td>GOST 31340-2007 Warning marking of chemical products. General requirements</td>
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<td>18</td>
<td>Additional list No. 4 to the &quot;List of maximum permissible concentrations (MPC) and safe reference levels of impact (SRLI) of hazardous substances on the water of commercial fishery ponds&quot; adopted by Russian Fishery Committee order No. 100 dated June 28, 1995 (Annex to Water Protection Rules, 1991).</td>
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<td>19</td>
<td>Expert opinion on the estimated environmental impact of the growth regulator Albit, Liquid Paste. Moscow, Soil Science Faculty of Lomonosov Moscow State University, 2008.</td>
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<td>20</td>
<td>Safety rules and procedure for responding to emergencies involving hazardous cargo during their transportation by rail. Moscow, 1997.</td>
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<td>21</td>
<td>Rules for transporting hazardous cargo by motor transport. Moscow, 1995.</td>
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<td>23</td>
<td>Annex 2. Hazardous cargo transportation rules (Part 2). To the Agreement on International Cargo Transportation by Rail (with the EASC), 1998.</td>
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<td>24</td>
<td>Recommendations on applying Biostimulant Albit, liquid paste (Plant Growth Regulator).</td>
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<td>25</td>
<td>Recommendations on applying Biostimulant Albit, liquid paste (Plant Growth Regulator, in private gardening).</td>
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<td>26</td>
<td>Recommendations on applying Biostimulant Albit, liquid paste (Fungicide).</td>
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<td>Recommendations on applying Biostimulant Albit, liquid paste (Antidote)</td>
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<td>29</td>
<td>Sanitary Rules and Norms (SanPiN) 1.2.2584-10 - &quot;Hygiene requirements for the testing, storage, transportation, application, use, disposal and utilization of pesticides and agricultural chemicals&quot;.</td>
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<tr>
<td>30</td>
<td>List of pesticides and agricultural chemicals permitted for use on Russian territory, with annexes. Insert in the journal Plant Protection and Quarantine. Moscow, (published annually).</td>
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<td>31</td>
<td>Reference manual &quot;List of commercial fishery norms: maximum permissible concentrations (MPC) and safe reference levels of impact (SRLI) of hazardous substances on water of commercial fishery water bodies&quot;. Moscow, VNIRO publishers, 1999.</td>
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<td>32</td>
<td>TECHNICAL SPECIFICATIONS Albit, liquid paste TU 9291-001-18072394-01 (with all the amendments approved).</td>
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<td>33</td>
<td>Expert opinion based on the Biostimulant Albit, liquid paste registration tests results on bees (VNIIVSGE, Moscow, 2012).</td>
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<td>34</td>
<td>Expert opinion on the materials of toxicological and hygienic assessment of Biostimulant Albit, liquid paste (6.2 g/kg of Poly-beta-hydroxybutyric acid, 91.2 g/kg of Potassium nitrate, 91.1 g/kg Dipotassium phosphate, 29.8 g/kg of Magnesium sulfate, 181.5 g/kg of urea) fungicide, plant growth regulator and antidote, manufactured by Albit LLC, Russia (Federal State Scientific Institution Research Center of Toxicology and Hygienic Regulation of Biological Products, Federal Service for Supervision over Consumer Rights Protection and Human Welfare, 2008).</td>
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<td>35</td>
<td>Expert opinion on the materials of commercial fish toxicology characteristics of the plant growth regulator, fungicide, and antidote ALBIT, liquid paste produced by ALBIT LLC. AzNIIRKh, Rostov-on-Don, 2008.</td>
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