


SAFETY DATA SHEET (SDS)

according to Rules of Procedure of EU No 1907/2006 (REACH), No 2015/830, No 1272/2008 (CLP) and Provision of European Union Commission No 453/2010

Complex multi-functional additive D-5 to concretes, solutions, dry construction mixtures and cements, TU 5745-002-37415339-2015
Code TNVED 3824 40 000 0

Issue date: July 17, 2018

1. SECTION 1: DESIGNATION OF SUBSTANCE/MIXTURE AND COMPANY/ENTERPRISE	
1.1. Product identifier	
Commercial denomination:	Complex multi-functional additive D-5 to concretes, solutions, dry construction mixtures and cements
Chemical denomination (according to IUPAC):	Not available
Synonyms:	None
CAS number:	Not available
EC number:	Not available
Registration number (REACH):	Not included
1.2. Appropriate usage methods for substance or mixture according to designation and not recommended usage methods	
Product application:	The additive applies in concretes, solutions, dry construction mixtures and cements as a super-plasticizing (water-reducing), stabilizing (decreasing water- and solution gain), adjusting storageability of mobile concrete mixture, air-intake influencing, speeding up of strength gain, increasing strength, decreasing permeability (increasing waterproofing), increasing sulfate- and frost-resistance
Not recommended usage methods:	Recommended dosage of the additive: 2-3% from cement mass. Allowable scope for concretes, solutions, dry construction mixtures and cements with the additive - all concrete and reinforced concrete structures or finishing coatings of buildings and structures of housing-civil, road, hydro-technical, industrial and mining construction, including systems of drinking water supply
1.3. Information about supplier of safety data sheet	
Manufacturer (supplier):	Scientific-production enterprise TOKAR Co., Ltd. 362002, t. Vladikavkaz, st. Pojarskogo, 19 «A», Russian Federation.
Telephone:	+7 8672 51 17 73, +7 (928) 494 60 39
E-mail:	dobavkad5@mail.ru
1.4 Telephone for calling in emergencies	
Information about actions in emergency situations:	112 (Russia, European Union), 112 and 911 (United States of America, Canada)
Other information:	http://www.tokard5.ru
2. SECTION 2: IDENTIFICATION OF RISKS	
2.1. Classification of substance or mixture	
According to «Rules of procedure on classification, marking and packaging of chemical substances and mixtures» (CLP) and «Global harmonized information system on safety of chemical products (GHS) No 1272/2008:	The additive is a chemical product, - which cause skin disorder (necrosis)/ irritation of hazard category 3; - which cause severe eyes damage/irritation of hazard category 2, subcategory 2B; - is a carcinogenic agent of hazard category 2; - which has selective toxicity on target organs and/or systems at repeated/long-term action of hazard category 1
2.2. Elements of marking	
Signal word:	«Caution»
Hazard symbols:	«Human health hazard» (GHS08), «Exclamation mark» (GHS07)
	
Short characteristics of hazard:	H320: «In case of contact with eyes causes irritation», H316: «In case of contact with skin causes low irritation», H373: «May affect respiratory system (lungs) as a result of repeated or long-term inhalation action»
Precautionary measures:	P201+P202: «Before usage it is necessary to get through the instruction about work-

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ing with this product and familiarize with safety instructions», P260: «Do not inhale dust», P264: «Carefully wash hands after work», P280: «Use gloves/protective clothing/protective means for eyes/face», P305+P351+ P338: «In case of contact with eyes: carefully wash eyes with water during several minutes. Remove contact lenses, if you use them, and if it is easy. Continue washing with water», P308+P311: «At suspicion on possibility of affection request medical assistance», P332+ P311: «In the event of skin irritation request medical assistance», P337+P311: «If eyes irritation does not go away, request medical assistance», P312: «In the event feeling sick request medical assistance», P405: «Store in inaccessible place»

2.3. Miscellaneous risks

Affects breathing and central nervous systems, gastro-intestinal tract, heart, liver, lymph nodes

3. SECTION 3: COMPOSITION/COMPONENT INFORMATION

Chemical denomination, formula	CAS No	EC No	Weight percentage, %
Multi-functional additive D-5 including:	Not available	Not available	up to 100
sodium oxide (Na ₂ O)	1313-59-3	215-208-9	1,04
potassium oxide (K ₂ O)	12136-45-7	235-227-6	1,09
titanium dioxide (TiO ₂)	13463-67-7	236-675-5	0,44
sulfur trioxide (SO ₃ comm.)	7446-11-9	231-197-3	29,23
chlorine ion (Cl ⁻ comm.)	7782-50-5	231-959-5	0,065
diphosphorus pentoxide (P ₂ O ₅)	1314-56-3	215-236-1	0,06
magnesium oxide (MgO)	1309-48-4	215-171-9	0,89
silicon oxide (SiO ₂ , comm.)	7631-86-9	231-545-4	39,53
ferric oxide (III) (Fe ₂ O ₃ , comm.)	1309-37-1	215-168-2	4,50
aluminium oxide (Al ₂ O ₃)	1344-28-1	215-691-6	8,10
calcium oxide (CaO)	1305-78-8	215-138-9	1,57

4. SECTION 4: FIRST AID MEASURES

4.1. First aid measures

Main guidelines: At working with the additive it is necessary to observe the measures of private hygiene; inhale the dust and getting in touch of skin and eyes

At contact with eyes: Wash with flowing water at widely open eyes

At contact with skin: Wash with flowing water

At inhaling: Fresh air. Free the injured person from tightening clothes, provide warm, rest

At swallowing: Rinse mouth with water. Plenty water drinking

4.2. Most serious symptoms and influences, acute and appearing with delay

In case of dust contact with eyes: Eye redness, eye watering, smarting

In case of contact with skin: Low redness, dryness

At inhaling: No cases of acute intoxication in production conditions are described. At inhaling of high concentrations throat irritation, coughing, sneezing are possible. Long-term contact increases degree risk of respiration organs disease (pleural changes, development of pneumoconiosis)

At swallowing: Safe at one-time use. At swallowing of significant doses nausea, vomit, abdominal pains, diarrhea are possible

4.3. Criteria of necessity of immediate health encounter and specialized treatment

In case of contact with eyes, at inhaling and at swallowing in large doses

5. SECTION 5: FIREFIGHTING MEASURES

5.1. Fire extinguishing means

Appropriate fire extinguishing means: At fire in storehouses and in places of working with the additive fire extinguishing means according to the main source of fire are used

Non-appropriate fire extinguishing means: Not known

5.2. Special risks, concerned with the substance or mixture

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Dangerous products, creating in fire bed:	Not present
5.3. Advice for firemen	Package can be involved in burning process. In the event of fire, flame should be extinguished in gas mask and in protective clothing. Requirement of evacuation from emergency territory is determined from local evacuation plan

6. SECTION 6: PREVENTING MEASURES OF ACCIDENTAL LEAKAGES	
6.1. Individual precautionary measures, protective means and procedures of actions in emergencies	Remove vehicle in safe place. Isolate the dangerous zone in radius of 50 m. Correct this distance according to results of chemical reconnaissance. Remove unauthorized persons. Enter the dangerous zone only in protective clothes. Remove the reason of the leakage. Observe measures of fire safety. Render first aid for injured people. Transport people from dangerous zone to medical assistance
6.2. Environment precautionary measures	Prevent getting the additive into drainage system, sewerage and in surface waters. In case of harmful environment influence, inform the bodies of sanitary-epidemiological surveillance
6.3. Methods and materials for localization and removal	<i>In compartment:</i> Collect the scattered additive in separate reservoir and direct for cleaning and utilization; wash the remnants with water, and then wipe with dry cloth. <i>On open air:</i> Collect the additive by spade or shovel in separate reservoir for following cleaning or removing to waste area. Wash surfaces of tare and vehicle with water. Turn over the soil at absence of possibility to collect
6.4. References on other sections	Information about individual protective means is given in Section 8 of the present document and information of removal - in Section 13

7. SECTION 7: HANDLING AND STORAGE	
7.1. Precautionary measures for safe handling	Transportation is fulfilled by all kinds of transport in accordance with rules of cargo transportation, actual on this kind of transport
7.2. Safe storage conditions, including any cases of incompatibility	Storage recommendations: Packed additive store in closed dry storage facilities, protected from increased humidity, atmospheric precipitation and aggressive media (acids, alkalis). In site conditions it is allowed the short-term storage of the additive under shed in plant package, covered with polyethylene film. Guarantee storage time – 24 months from the date of manufacture
Packaging means and materials:	The additive is packed in paper bags by net mass 1 kg, or in paper valve bags by net mass 18 kg. Bag valves should be sewed up
7.3. Special guidelines	The additive could also be packed in other kinds of packing, ensuring its undamaged condition at transportation and storage





8. SECTION 8: INFLUENCE REDUCING MEANS / PRIVATE HYGIENE MEANS	
8.1. Controlled parameters	Allowable limit concentration of vapors and aerosols of the additive in working zone air: - on silicon oxide: 3/1 mg/m ³ (3 hazard class); - on titanium dioxide: - 10 mg/m ³ (4 hazard class); - on diphosphorus pentoxide: 1 mg/m ³ (2 hazard class); - on sulfur trioxide: 1 mg/m ³ (2 hazard class); - on ferrous trioxide: - 6 mg/m ³ (4 hazard class); - on magnesium oxide: 4 mg/m ³ (4 hazard class); - on aluminum oxide: - 6 mg/m ³ (4 hazard class);

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<p>8.2. Influence reducing means Recommended monitoring procedures:</p> <p>Relevant technical influence reducing means:</p> <p>Personal protective equipment: - protection of eyes/face:</p> <div style="text-align: center;"></div> <p>- protection of skin (protection of hands / other):</p> <div style="display: flex; justify-content: center; gap: 20px;"> <div style="text-align: center;"></div> <div style="text-align: center;"></div> </div> <p>- protection of breathing organs:</p> <div style="text-align: center;"></div> <p>- protection from thermal influence:</p> <p>Other protective measures:</p>	<p style="text-align: center;">- on calcium oxide: 1 mg/m³ (2 hazard class);</p> <p>Contents of hazardous substances in working zone air should be provided below established threshold values (ETV) and verified metrologically by certified method not less 1 times per month</p> <p>Handling the additive should be performed on open air or in good ventilated compartments. Used apparatus of dust-exhaust system – cyclones, hose filters. Systems of mandatory influx-and-extract ventilation must be designed taking into account local conditions: air stream should move from source of extraction of hazardous substances and from personnel. Equipment and apparatus, if possible, should be in hermetical execution.</p> <p>Air, containing vapors and aerosoles of the additive, before release in atmosphere should be purified up to established maximum allowable norms of releases. Sweeping up of working compartments should be performed after ending of each shift. Storage of foods, meal, smoking are not allowed in compartments, where works with additive are performed. Washing hangs and rinse mouth should be done before meal; and taking shower - after ending of shift</p> <p>Goggles with side shields</p> <p>Not required in normal conditions. At emergency situations: gloves or cotton gauntlets, suits for protection from common industrial contaminations</p> <p>Cottonwool bandage, respirator. At significant concentrations - filter gas mask</p> <p>Not applicable</p> <p>Access to flowing water should be for washing eyes. Contaminated clothes should be laundered systematically. Shoes, gloves and goggles should be washed with water regularly</p>
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9. SECTION 9: PHYSICAL AND CHEMICAL CHARACTERISTICS

9.1. Information about main physical and chemical properties	
Appearance:	Floured dry powder
Color:	From light-beige to light-brown
Smell:	Not available
Smell threshold:	Not applicable
Index pH:	Information is not present
Temperature of crystallization start:	Information is not present
Melting temperature:	Information is not present
Boiling temperature:	Information is not present
Inflammation temperature:	Not applicable
Autoignition temperature:	Not applicable
Lower limit of inflammation:	Not applicable
Upper limit of inflammation:	Not applicable
Relative density:	Information is not present

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Unit weight (water = 1):	Information is not present
Vapor density (air = 1):	Not applicable
Vapor pressure:	Not applicable
Evaporation speed:	Not applicable
Solubility in water:	Insoluble
Solubility in other substances:	
Distribution ratio n-octanol/water:	Insoluble in fats and organic solvents
Dynamic viscosity:	Not applicable
Oxygenating properties:	Not applicable
Explosive properties:	Not applicable
Relative molecular weight:	Not applicable
	Not applicable

9.2. Other information

Losses at annealing:	Not more than 22,41%
Specific effective activity of natural radionuclide:	Not more than 370 Bk/kg

10. SECTION 10: STABILITY AND CHEMICAL ACTIVITY

10.1. Chemical activity

Not decomposes, not absorbs moisture

10.2. Chemical stability

The additive is stable at normal conditions of usage, transportation and storage; not oxidises

10.3. Possibility of dangerous reactions

Not pass

10.4. Dangerous conditions

Contact with acids, alkalines, action of water and increased humidity should be excluded

10.5. Incompatible substances and materials

Alkalines, acids

10.6. Dangerous products of decomposition

Not created in normal conditions.

11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information about toxicological influence

At contact with skin:	Low irritates skin. Not possesses skin-resorptive action
At contact with eyes:	Irritates eyes
At inhaling:	Irritates mucosals of breathing organs
At swallowing:	Non-hazardous in one-time doses
Chronical toxicity:	Information is not present
Acute toxicity:	<i>On amorphous silicon dioxide:</i> DL ₅₀ > 7 500 mg/kg, rats, peroral; DL _{min} = 40...90 mg/kg, rats, mice, v/v; CL ₅₀ not achieved. Dust concentration range, at action of which animals suffer from silicotic changes in lungs, relatively wide, however concentrations within 30-100 mg/m ³ at duration of dusting about 5-6 h per day, from several weeks up to 12-18 months were used more often
Sensibilization of breathing organs:	Not available
Sensibilization of skin:	Not available
Mutagen action:	Not available
Carcinogenic action:	Possible carcinogenic action
Influence on reproductive system:	Not available

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toxicity for target organs and systems:	Possesses fibrogenic action. Chronical inhalation can lead to functional disorders of respirator system, pathological changes in lungs, atrophic respiratory catarrh, chronic bronchitis бронхиты in conjunction with pulmonary emphysema, pleural changes and pneumoconiosis (silicosis)
11.2. Other information	Cumulativeness is light

12. SECTION 12: ECOLOGICAL INFORMATION	
12.1. Toxicity	<i>On amorphous silicon dioxide:</i> LC ₅₀ > 100 mg/l, fish, 96 h. Allowable limit concentration of the additive in atmospheric air of populated areas – 0,3 mg/m ³ m.r. / 0,1 mg/m ³ s.s., 3 hazard class (according to dust with content SiO ₂ from 20 up to 70%).
12.2. Stability and decomposition ability	The additive is not transformed, not hydrolized, not accumulated in living tissue. At interaction with objects of environment does not create secondary dangerous products
12.3. Ability to bioaccumulation	Biological dissimilation – less than 10% (BD = BPK _g /ChPK × 100% < 10%)
12.4. Mobility in soil	Information is not present
12.5. Evaluation results of ability for bioaccumulation and toxicity (RVT) and presence of very stable bioaccumulative substances (vPvB)	Information is not present
12.6. Other negative influences	Information is not present

13. SECTION 13: RECOMMENDATIONS ON DUMPING	
13.1. Safety measures at handling with waste	Safety measures at handling with waste are analogical to the measures, which used at handling with the finished product
13.2. Information about places and methods of deactivation	The additive is collected in special reservoir and directed to secondary processing, elimination or disposal in specially allotted places (e.g. abandoned pit, waste deposit of industrial waste etc.). Liquidation of non-conditional waste and screenings of feedstock is fulfilled to meet the requirements according to environmental protection requirements and existing legislation

14. SECTION 14: INFORMATION FOR TRANSPORTATION	
14.1. UN NUMBER	Not applied
14.2. Shipping denomination according to UN Recommendations	Not applied
14.3. Hazard class	Not classified as hazard cargo
14.4. Packing group	Not classified as hazard cargo
14.5. Information about risks for environment	Not hazard for environment at observance of handling rules
14.6. Special precautionary measures for user	At marking of transport tare the manipulation signs «Top», «Avoid moisture» are marked
14.7. Bulk transportation in accordance with Attachment II to conventions MARPOL 73/78 and «international code of transportation of dangerous chemical bulk cargoes» (IBC)	Not applicable

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15. SECTION 15: NORMATIVE INFORMATION

GOST 19433-88	Dangerous cargoes. Classification and marking
GOST 31340-2013	Warning marking of chemical products. General requirements
GOST 32419-2013	Hazard classification of chemical products. General requirements
GOST 32423-2013	Hazard classification of mixed chemical products according to human influence
SanPiN 2.1.7.1322-03	Hygienic requirements for allocation and disposal of industrial and consumption wastes Maximum allowable levels (PDU) of contamination of skin surfaces by hazardous substances
GN 2.2.5.2893-11	Maximum allowable concentration (PDK) of hazardous substances in working zone air
GN 2.2.5.1313-03	Maximum allowable concentrations (PDK) of chemical substances in water of pools of household-drinking and cultural-household water usage
GN 2.1.5.1315-03	Maximum allowable concentrations of contaminated substances in atmospheric air of populated areas
GN 2.1.6.1338-03	Manual on hygienic assessment of factors of working media and labor process. Criteria and classification of labor conditions
R 2.2.2006-05	

Information card of hazardous substance. Silicon dioxide. Sertificate No AT-002071 – M: RPOChBV, 24.07.2001
«Normatives of water quality of water objects of commercial fishing, including normatives of maximum allowable concentrations of hazardous substances in waters of water objects of commercial fishing» (established by Resolution No20 from 18.01.2010 of Federal fishing agency).
«Uniform sanitary-epidemiologic and hygienic requirements to goods, which subject to sanitary-epidemiologic supervision (control)» (established by Resolution of the Customs Union Commission by May 28, 2010, No 299), Chapter II, Section 19
«Uniform list of goods, subject to sanitary-epidemiologic supervision (control) on customs border and customs territory of the Customs Union», established by Resolution of the Customs Union Commission from May 28, 2010, No 299
PN ISO 11014-1:2008 Standard: «Chemical safety - Safety data sheet of chemical products».
Rules of procedure 1907/2006/WE in relation of registration, evaluation, autorisation and restrictions for use of chemical substances (REACH), establishing the European chemical agency, making amendments in the Directive 1999/45/EC and withdrawing Rules of procedure of the Council (EEC) No 793/93 and Rules of procedure of the Commission (EC) No 1488/94, as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.
Rules of procedure 1272/2008/WE of European Parliament and Council from December 16, 2008 about classification, marking and packaging of chemical substances and mixtures, making amendments and withdrawing Directives 67/548/EEC and 1999/45/EC and making amendments in Rules of procedure (EC) No 1907/2006.
Rules of procedure of the Commission (EC) No 790/2009 from August 10, 2009, making amendments, with aim of adaptation to scientific and technical progress, in Rules of procedure (EC) No 1272/2008 of European Parliament and the Council in relation of classification, marking and packaging of chemical substances and their mixtures.
Rules of procedure of the Commission (EC) No 453/2010 from May 20, 2010, making amendments in Rules of procedure (EC) No 1907/2006 of European Parliament and the Council in relation of registration, evaluation, authorization and restrictions of usage of chemical substances (REACH)

16. SECTION 16: OTHER INFORMATION

16.1. Accepted conventional abbreviations

IUPAC	International union of theoretic and applied chemistry
CAS No	Unique numeric indicator of chemical compounds, polymers, biological successions of nucleotides or amino acids, mixtures and alloys, included in roster Chemical Abstracts Service
EC No	Number, determined by European Union Commission for classification and marking of dangerous substances
GOST (GOST R)	State standard, adopted by «Interstate council on standartization, metrology and certification» (MFC)
RPOChBV	Russian Register of potentially dangerous chemical and biological substances (database)
ChPK	Index of chemical oxygen consumption
BPK ₅	Biological consumption of oxygen (5 days)
TR TS	Technical Regulation of the Customs Union

16.2. Disclaimer statement

The information, presented in this safety datasheet, is intended for characteristic of the additive from view point of required safety rules. It does not guarantee definite properties and based on scientific information and on normative and technical documentation, which is known to the present moment. No obligations is foreseen

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16.3. Regulation of normative documentation

The state standards and normative documents, which are referred in this document, are obligatory to usage on the territory of Russian Federation and adopted them countries of Commonwealth of Independent States (CIS); on territories of other countries these documents have recommendatory character

Chief executive Oleg Bazoev

«18» июля 2018 г.

