

Adhesive Additive Azol 1002	Safety Data Sheet Registration No. 00205423.24.30590	Page 1 of 12
	Valid until 22 April 2018.	

SAFETY DATA SHEET

Listed in the Register	
Safety Data Sheet registration number <u>00205423 24 30590</u>	as of <u>22 April 2013</u> .
	Valid until <u>22 April 2018</u> .
Federal Agency on Technical Regulating and Metrology	
Research and information center "Safety of substances and Materials"	
Federal State Unitary Enterprise "All-Russian research center for standardization, information and certification of raw stock, materials and substances"	
	Head <u>/Signature/</u> /A.D.Kozlov/ Place of Seal Seal:
	FEDERAL STATE UNITARY ENTERPRISE Primary State Registration Number (OGRN) 1027700169144 MOSCOW
All-Russian research center for standardization, information and certification of raw stock, materials and substances Federal Agency on Technical Regulating and Metrology RIC "SoSM" Federal State Unitary Enterprise (FGUP)	

NAME:

technical (under RD)

chemical (under IUPAC)

trade

synonyms

Adhesive Additive AZOL 1002	
not available	
Adhesive Additive AZOL 1002	
not available	
National product classification code (OKP): 249000	HS Code (TN VED): 3807009000

Symbols and names of the main regulatory, technical or information document for the product (GOST, TS, OST, STO, (M)SDS, etc.)

STO 00205423-002-2012. Adhesive Additive AZOL 1002. Technical Specification.
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HAZARD DESCRIPTION:

Signal word: CAUTIOUS

Brief (word description): low health hazard product. Irritating to eyes and skin, can be absorbed through the skin. Flammable product. Can contaminate water bodies and ground.

Full: see 16 Sections of the MSDS below.

MAIN HAZARDOUS COMPONENTS	Occupational Exposure Limits, mg/m ³	Hazard class(es)	CAS No.	EC No.
Diethylenetriamine (DETA) (N-(2-Aminoethyl)-1,2-ethanediamine)	0.3	2	111-40-0	203-865-4
Triethylenetetramine (TETA) (N,N'-Bis(2-aminoethyl)ethane-1,2-diamine)	0.3	2	112-24-3	203-950-6
(2-aminoethyl)ethanolamine (OEDA) (2-(2-aminoethyl)amino]-ethanol)	3	3	111-41-1	203-867-5

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APPLICANT: AO Kotlas chemical plant (OJSC),

(Company name)

Koryazhma, Arkhangelsk Oblast.

(Town/city)

Type of the applicant: manufacturer, supplier, seller, exporter, importer

(Strike out whichever is not desired)

Russian National Classifier of Enterprises and Organizations (OKPO): 00205423 Emergency Phone:

(81850) 3-11-88

Head of the applicant company: _____ /Signature/

(Signature)

Place of Seal

/I.P.Dobrokhotova/

(Full name)

Seal 2:

Open Joint Stock Company

Tax identification number (INN) 2905000843, Industrial Enterprise Classification Code (KPP) 290501001

Koryazhma, Arkhangelsk Oblast.

OGRN 1022901140789

Kotlas chemical plant

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IUPAC - International Union of Pure and Applied Chemistry

GHS - recommendations of UN ST/SG/AC. 10/30 “Globally Harmonized System of Classification and Labelling of Chemicals”

OKII (OKP) - All-Russian Classifier of Products

OKHO (OKPO) -All-Russian Classifier of Enterprises and Organizations

FEACN - Foreign Economic Activity Commodity Nomenclature

CAS No. - a unique numerical identifier assigned by Chemical Abstracts Service

EC No. - a unique seven-digit identifier assigned by the European Chemicals Agency

OELw.a. - Occupational Exposure Limits, mg/m³ (short-term exposure limit/TWA)

Safety Data Sheet - Safety Data Sheet of Chemicals (substance, mixture, material, wastes)

Safety Data Sheet complies with:

- Recommendations of UN ST/SG/AC. 10/30 GHS;
- EC Regulation No. 1907/2006 concerning Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), Annex II

Signal word: - either word **Dangerous** or **Cautious** (or **None**) is specified in accordance with GOST 31340-2007 *Labelling of chemicals. General requirements.*

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1. Identification of the substance/mixture and of the company/supplier

1.1. Product identifier

1.1.1. Technical name:

Adhesive Additive Azol 1002

1.1.2. Relevant identified uses:

The product is intended as an additive to asphalt cement and polymer modified asphalt cement when preparing bitumen-concrete mixtures /1/.

(including uses advised against)

1.2. Manufacturer/supplier information

1.2.1. Full company name:

OAO Kotlas chemical plant (OJSC)

1.2.2. Mail Address:

Koryazhma, Arkhangelsk Oblast, 165651

1.2.3. Emergency telephone number (including time-limits):

(81850) 3-11-88

1.2.4. Fax:

(81850) 3-08-46

1.2.5. E-mail:

khz@atnet.ru

2. Hazards identification

2.1. Classification of the product:

Low health hazard product under the toxicometry (hazard class 4 under GOST 12.1.007) /1, 27/.

(information on the hazard classification in accordance with the legislation of the Russian Federation (GOST 12.1.007) and GHS (after approval))

2.2. Occupational hygienic standards for the product:

Not established for the product /11/.

(OELw.a. or SRLI)

2.3. Label elements

Symbol: exclamation mark

(under GOST 31340-07)

Signal word: Cautious

Brief hazard description: upon eye contact the product causes severe irritation, upon skin contact it causes irritation.

Preventive measures: Eye Contact: rinse carefully with plenty of water for several minutes. Remove contact lenses, if worn, and easy to do. Go on rinsing the affected eye. Remove contaminated clothing, and flush affected area(s) with plenty of water and soap.

Get medical attention if skin and eye irritation persists. Wash hands thoroughly after handling /7/.

3. Composition/information on components

3.1. Information of the product in general

3.1.1. Chemical Name: (under IUPAC)

None

3.1.2. Chemical Formula:

None, complex mixture

3.1.3. Characteristics of the composition: (taking into account brand assortment and specification of contaminations and functional additives affecting the hazards arising from the product, method for the production)

It is a surfactant (SAS) of a cationic head group (a nitrogen SAS mixture of an imidazoline type based on fatty acids of wood chemical industry and agricultural oils) /1/.

3.2. Components:

(Name, CAS No. and EC No. (if available), % wt., OELw.a. or SRLI, hazard class(es), references)

Components	% wt.	CAS No.	EC No.	OELw.a. mg/m ³	Hazard class(es)	References
A mixture of amide imides and fatty imidazolines of C ₁₆ -C ₂₀	95-97	No	No	Not determined	No	/11/

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fraction and polyethylene polyamines:						
residual components, including:	x)					
- Diethylenetriamine (DETA) (N-(2-Aminoethyl)-1,2-ethanediamine)		111-40-0	203-865-4	0.3	2	/11/
- Triethylenetetramine (TETA) (N,N'-Bis(2-aminoethyl)ethane-1,2-diamine)		112-24-3	203-950-6	0.3	2	/11/
- (2-aminoethyl)ethanolamine (OEDA) (2-(2-aminoethyl)amino]-ethanol)		111-41-1	203-867-5	3	3	/11/

x) Total content of the residual components in the product does not exceed 5% /31/.

4. First aid measures

4.1. Symptoms:

4.1.1. If inhaled:

Under normal conditions, it is not expected to present an inhalation hazard due its low volatility.

Long-term exposure to vapor and aerosol by inhalation (if heated up to 140°C-200°C) can cause throat tickle, cough, and shortened breath /1, 17, 28, 29/.

4.1.2. Skin contact:

Symptoms may include redness, pain, and itching, prolonged contact may cause dermatitis /17, 28, 29/.

4.1.3. Eye contact:

Redness, tearing, acute pain, and swelling /17, 28, 29/.

4.1.4. Ingestion:

Stomachache, nausea, vomiting, and diarrhea /17, 28, 29/.

4.2. First-aid measures to the affected

4.2.1. If inhaled:

Remove casualty to fresh air, keep warm, and at rest, provide clean clothing. Get medical attention, if needed /17, 28, 29/.

4.2.2. Skin contact:

Remove contaminated clothing. Remove the product with a cotton pad wetted with alcohol, flush contaminated skin with large amounts of water and soap. Seek medical attention if irritation persists /1, 17, 28, 29/.

4.2.3. Eye contact:

Immediately flush eyes with 0.5% solution of acetic acid with water, then, with plenty of water for several minutes and get medical attention /1, 17, 28, 29/.

4.2.4. Ingestion:

Immediately seek medical attention /1, 28, 29/.

4.2.5. Counter-indications:

No data available /17, 28, 29/.

4.2.6. First aid equipment (first aid kit):

Standard first aid kit.

5. Fire-fighting measures

5.1. Characteristics of fire/explosion hazards:

Adhesive Additive Azol 1002 is flammable /1/.

5.2. Indicators of fire/explosion hazards:

Flash point: >230°C /1/.

(a list of indicators under GOST 12.1.044 and GOST R 51330.0)

5.3. Hazards arising from combustion products and/or thermal decomposition:

Fire and thermal decomposition may produce toxic products: nitrogen oxides and carbon oxides harmful for human health /28, 29/.

5.4. Suitable extinguishing media:

For small fires: foam and powder extinguishers, sand, and fire blanket. For large fires: it is recommended to use foam spray /1/.

5.5. Not appropriate extinguishing media:

Water spray jet is ineffective /18/.

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5.6. Personal protective equipment during fires extinguishing: (fire-fighters' PPE) Fire-fighting suit with a self-rescuer apparatus "СПИ-20" /22/.

5.7. Specific hazards: Do not come to burning containers. Cool exposed containers with water from a protected position /22/.

6. Accidental release measures

6.1. Measures to prevent hazardous exposure to people, the environment, buildings, constructions, etc. in emergencies and accidents

6.1.1. Required general actions: Keep non-emergency personnel out of the affected area. Isolate the hazard area. Remove sources of fire, sparks, do not smoke. Use PPE. Provide first aid to the affected /22/.

6.1.2. Personal protective equipment: (emergency response team and personnel) Overalls, oil and petrol resistant gloves, butyl rubber gloves, safety goggles, and safety shoes /22/.

6.2. Response measures to emergencies and accidents

6.2.1. Spill, leak and releases procedure: (including precautions to protect the environment) In the premises:

Turn on the emergency ventilation. Contain the released material; prevent the product from entering drains. Cover a spillage area with sand or other absorbent material. When transporting:

Take the vehicle to a safe place. Inform the territorial body of the Federal Service for Consumer Rights and Human Welfare Protection. Dike a spillage area; cover it with sand, soil, or other inert absorbent material. Prevent spillage from entering watercourse, basements, or sewers.

Collect contaminated sand (soil or absorbent material) in separate containers, seal and remove to further disposal at a place agreed with the local authorities of the Federal Service for Consumer Rights and Human Welfare Protection. Cover areas of cut-offs with fresh soil. Wash the vehicle surfaces with detergents. Replow the soil /22/.

6.2.2. Fire management: In case of fire: avoid coming up to burning containers, cool exposed containers with water from a protected position. It is recommended to use foam spray, and full protective clothing /22/.

7. Storage and handling chemicals during loading-unloading operations

7.1. Safety measures when handling chemicals

7.1.1. Safety measures and collective protective equipment: Supply and exhaust ventilation of the production premises.

(including a system of fire and explosion hazard measures) Regular control over the exposure limits for product components in the air of the workplace. Pressurization of equipment, containers, and pipelines.

Use of explosion-proof electric equipment and lighting, equipment and pipeline ground.

Equipping production premises with basic fire-fighting equipment.

Use of PPE.

Minimize formation and accumulation of waste and rags /1/.

7.1.2. Measures for protection of the environment: Pressurization of equipment and containers, compliance with technological processes when handling the product.

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The analysis of industrial emissions and effluents for the content of harmful substances in permissible concentrations.

Collection and regulated waste disposal /1/.

7.1.3. Recommendations for safe displacement and transport: To ensure the safety of the product, containers with the product are transported in the packaged form with the use of pallets and means of fastening. Conditions on container leak proof should be complied with. Prevent containers from mechanical risk and moisture /1/.

7.2. Storage:

7.2.1. Safe storage conditions and terms: (including storage warranty period) The product packed in drums shall be stored at ambient temperature on pallets in closed warehouses or open areas under cover, preventing ingress of moisture /1/. Storage warranty period is twelve months from the date of manufacturing /1/.

7.2.2. Storage incompatibility: Oxidizing agents, acids, strong alkalis /28, 29/.

7.2.3. Recommended packing materials: Steel drums of capacity 100, 200, and 275 dm³. Fullness coefficient of the container is 0.96 /1/.

7.3. General safety rules and storage precautions in household use: Not used in household /1/.

8. Engineering controls and personal protective equipment

8.1. Occupational parameters subject to compulsory control (OELw.a. or SRLI): At production and application: /1/

Diethylenetriamine - 0.3 mg/m³.

Triethylenetetramine 0.3 mg/m³

2-aminoethyl)ethanolamine - 3 mg/m³.

8.2. Measures to ensure the content of harmful substances in permissible concentrations: General and supply and exhaust ventilation of the production premises. Pressurization of equipment. Sealed containers /1/.

8.3. Personal protection equipment of the personnel:

8.3.1. General advice: Avoid breathing vapors and aerosols, avoid direct eye and skin contact with the product. Use PPE.

Observe good personal hygiene measures, do not eat when using this product, wash hands after handling the material and before eating, drinking, and/or smoking. Clean and wash protective clothing. Undergo training in occupational safety, and regular medical check-ups of the personnel engaged in production /1/.

8.3.2. Respiratory Protection (RPE types): Workplaces should be equipped with respirators "PY-60", "PY-60 MY", "PIIF-67A", or of similar type /1, 3/.

8.3.3. Protective overalls (materials, type): Overalls, protective gloves, safety goggles, and leather shoes /1, 6/.

8.3.4. Personal protective equipment when using the product in household: Not used in household /1/.

9. Physical and chemical properties

/ 1 /

9.1. Appearance at 20°C (physical form, color, odor) Dark brown viscous liquid

9.2. Odor Mild characteristic

9.3. Non-volatile content, %, not less 90.0

9.4. Viscosity, relative viscosity according to the viscosity meter "ВУБ-1Ф", with the nozzle diameter of 5 mm at 50°C, sec., not more 100

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10. Stability and Reactivity

10.1. chemical stability: (indicate decomposition products for unstable products) Stable under the prescribed storage and transportation conditions /1/.

10.2. Reactivity: It is likely to react with acids and strong oxidizers.

10.3. Conditions to avoid: (including hazardous effects when contacting with incompatible materials) Heating, contact with acids, alkalies, and strong oxidizers /1, 28, 29/.

11. Toxicological information

11.1. General exposure characteristic: (assessment of health exposure risk (toxicity)) Low health hazard product under the toxicometry. The most hazardous routes of entry are through eye mucosa and skin contact. Irritant to skin and mucous membranes /27/. Toxic effects are given for the product in general and residual components in its composition.

11.2. Routes of exposure: Inhalation, eye and skin contact, and ingestion.

(respiratory, oral, skin and eye contact)

11.3. Target organs, tissues and systems of a human: Central nervous system, respiratory system, liver, kidneys, gastrointestinal tract, eye mucosa and skin /17, 28, 29/.

11.4. Data on health hazards of the direct contact with the product, and delayed effects:

(irritant effect on the upper respiratory airways, eyes, skin, including skin-resorptive effects; sensitization)

- irritant effect

Irritant to skin and mucous membranes, mild irritant to respiratory mucosa /1, 27/.

- skin-resorptive effects

It has skin-resorptive effects /1, 27/.

- sensitizing effects

Not determined /1, 27/.

11.5. Information on delayed hazards:

(Effects on reproductive functions, carcinogenicity, bioaccumulative potential, etc.)

- effects on reproductive functions

No data available for the product.

Residual components: diethylenetriamine and triethylenetetramine can affect reproductive functions /28, 29/.

- Carcinogenicity

No data available for the product.

No studies have been taken for residual components /28, 29/.

- bioaccumulative potential

Moderate for residual components /28, 29/.

11.6. Indicators of acute toxicity:

(DL₅₀, route of entry (oral, dermal), type of animal;

CL₅₀, exposure time (hour), type of animal)

Adhesive Additive Azol 1002 /27/.

DL₅₀ > 5000 mg/kg, oral, rat

11.7. Minimum toxic (dose) concentration:

No data available for the product and residual components /27, 28, 29/.

12. Ecological Information

12.1. General characteristics of environmental impact: (ambient air, watercourses, soil) Pollution of water bodies leading to changes in the sanitary conditions of watercourses and organoleptic properties of water.

The contamination of soils and groundwater through spills, leaks, and unregulated waste disposal and landfill.

12.2. Environmental Effects:

In case of violation of handling, storage and transportation rules, unregulated waste disposal, and as a result of emergencies and accidents.

12.3. Observable features of exposure:

Changes in organoleptic properties of water, sanitary conditions of watercourses, depression of flora of coastal lands, degradation activity in soil.

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12.4. The most important characteristics of environmental effects:

12.4.1. Hygienic standards: (exposure limits in air, water, including fishery waters, soil)					
Components	OEL in the atmospheric air or SRLI in the atmospheric air, mg/m ³ (LNV ¹ , hazard class)	OEL water ² or APL-water, mg/l, (LNV, hazard class)	OELs fish ³ . or SRLI fish., mg/l, (LNV, hazard class)	OELs or APL soil, mg/kg (LNV)	Data sources
Diethylenetriamine	0.01/- (refl., hazard cl. 3)	0.2 (org.retr., hazard cl. 4)	0.1 (tox., hazard cl. 4)	-	/12, 13, 14/
Triethylenetetramine	0.01 (SRLI)	-	0.1 (tox., hazard cl. 3)	-	/12, 13, 14/
2-aminoethyl)ethanola mine	-	-	-	-	/12, 13, 14/

12.4.2. Ecotoxicity:

(CL, EC for fish, Daphnia magna, algae, etc.)

No studies have generally been conducted for the product.

Diethylenetriamine /28/

Threshold concentration for the effect on the color of the water: 0.2 mg/l makes the water smell and taste. Concentrations of 10-100 mg/l inhibit the BOD process.

Triethylenetetramine /29/

CL50 fish, 495 mg/l Pimephales promelas = 96 h

EC50 Daphnia magna, 31.1 mg/l, 48 h

Slowly transformed in the environment.

12.4.3. Distribution and environmental fate through biodegradation and other processes (oxidation, hydrolysis, etc.):

13. Waste (residuals) disposal considerations

13.1. Safety measures when handling wastes from use, storage, transportation, etc.

Safety measures are similar to those recommended for handling the main product (see Sections 7 and 8 of the SDS).

13.2. Information on places and methods of neutralization, disposal, or removal of substances (material) wastes including containers (packing):

Product wastes and used containers are subject to be collected in appropriate containers and forwarded for disposal to waste treatment companies with a permit and license for waste recycling, or places agreed with the local authorities of the Federal Service for Consumer Rights and Human Welfare Protection /20/. Disposal method is incineration.

13.3. Recommendations for waste removal arising from use in household:

Not used in household /1/.

14. Transportation information

14.1. UN Number:

Not applicable /24/

¹ LNV means limiting nuisance value (tox. - toxicological; san.-tox. - sanitary-toxicological; org. - organoleptic; refl. - reflectory; res. - resorptive; refl.-res. - reflectory-resorptive; fish. - fishery (changes in commercial quality of fishery aquatic organisms); gen. - general sanitary).

² Water of utility and drinking water bodies and social-community water consumption.

³ Water of fishery-intended water bodies (including marine)

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(in accordance with the UN recommendations on carriage of dangerous goods (Model Regulations), latest edition)

14.2. Proper shipping name and/or transportation name: Adhesive Additive Azol 1002 /1/.

14.3. Types of applicable transport vehicles: The product is transported by rail and road in covered vehicles in accordance with transportation rules effective for that type of transport /1/.

14.4. Classification of dangerous goods: Not classified as dangerous goods/1/.

(according to GOST 19433 and UN recommendations for dangerous goods transportation)

14.5. Transportation labelling: Transportation labelling is in accordance with GOST 14192-96.

(manipulation signs; basic, additional, and informational records) Manipulation sign: "Sealed packing" /1, 8, 10/.

14.6. Packing group: Not regulated /24/.

(in accordance with the UN recommendations on carriage of dangerous goods)

14.7. Information on hazards when transporting by road: Not required /21/.

road:

14.8. Transport emergency card: Not applicable /21, 22, 25/.

(when transporting by rail, sea, and others)

14.8. Information on hazards concerning international goods transport: Not required /23/.

goods transport:

(according to the Agreement on International Goods Transport by Rail, ADR, RID, IMDG Code, ICAO/IATA, etc., including data on hazards for the environment, such as, marine pollutant)

15. State and international regulations

15.1. State regulations

15.1.1. The RF laws: Law *On Technical Regulation*,
Law *On Environmental Protection*.

15.1.2. Documents regulating requirements for protection of human and environment: (certificates, Sanitary Certificates, records, etc.) Not subject to state registration /30/.

15.2. International Regulations

15.2.1. International Conventions and Agreements: Not regulated by Montreal Protocol and Stockholm Convention.

(Whether regulated by Montreal Protocol, Stockholm Convention, etc.)

15.2.2. EC Warnings: Codes and R-phrases:
R36/38 - Irritating to eyes and skin.
Instructions on safety:
S36/37 when handling, use protective clothing, protective gloves.
S38 - In case of insufficient ventilation, wear suitable respiratory equipment.

16. Other information

16.1. SDS review (new edition): SDS has been prepared for the first time.

(It is indicated that SDS has been prepared for the first time, or other cases with indication of the main reason for the SDS to be reviewed)

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16.2. List of References Used while Comprising SDS

- 1 STO 00205423-002-2012. Adhesive Additive Azol 1002.
- 2 GOST 12.1.007-76. *Occupational safety standards system. Harmful substances. Classification and general safety requirements.*
- 3 GOST 12.4.011-89. *Occupational safety standards system. Means of protection. Classification and general requirements.*
- 4 GOST R 12.4.013-97. *Occupational safety standards system. Safety glasses. General technical conditions.*
- 5 GOST 12.4.068-79 *Occupational safety standards system. Dermatologic personal safety means. Classification and general requirements.*
- 6 GOST 12.4.103-88. *Occupational safety standards system. Special protective clothes, personal means of hands and legs protection. Classification.*
- 7 GOST 31340-2007 *Labelling of chemicals. General requirements.*
- 8 GOST 14192-96. *Marking of cargoes.*
- 9 GOST 19433-88. *Dangerous Goods. Classification and marking.*
- 10 GOST 9980.3-86, GOST 9980.4-2002, GOST 9980.5-86 *Paint materials. Packing. Marking. Transportation and storage.*
- 11 HS 2.2.5.1313-03, 2.2.5.2308-07 *Occupational exposure limits (OELs) and safe reference levels of impact (SRLI) of harmful substances in air at workplace*, the Russian Ministry of Health. Moscow
- 12 HS 2.1.5.1315-03, 2.1.5.2307-07 *Occupational exposure limits (OELs) and approximate permissible level (APL) of chemicals in water of utility and drinking water bodies and social-community water consumption*, the Russian Ministry of Health. Moscow.
- 13 HS 2.1.6.1338-03, 2.1.6.2309-07 *Occupational exposure limits (OELs) and safe reference levels of impact (SRLI) of airborne contaminant in the populated area*, the Russian Ministry of Health. Moscow.
- 14 Reference book *'The list of fishery regulations: Occupational exposure limits (OELs) and safe reference levels of impact (SRLI) of harmful substances for water of fishery-intended water bodies'*. M., VNIRO publishing, 1999.
- 15 HS 2.2.5.563-96. *Occupational Exposure Limits (OELs) of skin contamination with harmful substances*, the Russian Ministry of Health, Moscow, 1997.
- 16 HS 1.1.725-98 *An inventory of substances, products, production processes, household and nature factors, carcinogenic for a human*, the Russian Ministry of Health. Moscow. 1999.
- 17 Reference book *Harmful chemicals. Nitrogen organic compounds*, edited by V.A. Filova, St. Petersburg, Khimia publishing, 1992.
- 18 A.Ya.Korolchenko *Fire Hazard of Substances and Materials, and means of their extinguishing*, Moscow, Association Pozhnauka, 2000
- 19 *Regulation of fire safety in the Russian Federation*, St. Petersburg. DEAN publishing, 2001.
- 20 Sanitary Rules and Regulations 2.1.7.1322-03 *Hygiene requirements for neutralization and disposal of production and consumption wastes.*
- 21 *Regulations on carriage of dangerous goods by road*, Moscow, 1995.
- 22 Reports *Transport emergency card for dangerous goods transported by railways of the CIS countries, the Republic of Estonia, the Republic of Latvia and the Republic of Lithuania*. M.: Transport, 2000.
- 23 *Regulation on transportation of hazardous cargoes to the Agreement on International Goods Transport by Rail (Annex 2 of the AIGT)*, the Ministry of Transport of the Russian Federation, 1998. ADR. *European Agreement concerning the International Carriage of Dangerous Goods by Road*. UN. New York and Geneva. 2002.
- 24 Dangerous Goods recommendations. Model Regulations. 14th revised edition. UN, New York and Geneva, 2005.

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25 Draft of Federal Law *On Special Technical Regulation for River Transport Safety and Related Infrastructure*, Federal State Institution Russian River Register.

26 *International Maritime Code for Dangerous Goods*. IMDG Code, volume 1, 2. St. Petersburg: ZAO CNIIMF, 2007.

27 Expert opinion on the results of laboratory analysis of Adhesive Additive Azol 1002 No. 2719-09 dated 24 September 2012, Federal State-Funded Healthcare Institution 'Hygiene and Epidemiology Center in Moscow'. Records of laboratory analysis of Adhesive Additive Azol 1002 No. 12699-12-T dated 7 September 2012, Federal State-Funded Healthcare Institution 'Hygiene and Epidemiology Center in Moscow'.

28 Diethylenetriamine data card of Russian Register of Hazardous Chemical and Biological Substances series BT No. 000593.

29 Triethylenetetramine data card of Russian Register of Hazardous Chemical and Biological Substances series BT No. 002289.

30 The unified list of goods subject to sanitary and epidemiological supervision (control) at the customs border and customs territory of Customs Union dated 22 November 2010.

31 Explanatory note of OAO Kotlassky chemical plant (OJSC) on Adhesive Additive Azol 1002.