SAFETY DATA SHEET

Listed in the Register

Safety Data Sheet registration number 57184037.22.21263 as of July 6, 2009
valid until July 6, 2014

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 /Signature//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	**ADHESIVE ADDITIVE "AFTISOTDOR" grade B**
chemical (under IUPAC)	**not available**
trade	**ADHESIVE ADDITIVE "AFTISOTDOR" grade B**
synonyms	**not available**

Information on the registration of the product

National product classification code (OKP): 2294750000	The product is not subject to registration
HS Code (TN VED):	

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

TS 2294-055-58604719-2008. Adhesive additive "Aftisotdor".

HAZARD DESCRIPTION:

Signal word: CAUTIOUS

Brief (word description): The product is designated as moderately hazardous by impact on the human health. The product has an irritant effect, may cross through unaffected skin. Hardly combustible liquid. The product constitutes a danger to the environment, especially to water bodies and soil.

Full: see 16 Sections of the SDS below.

MAIN HAZARDOUS COMPONENTS	**Occupational Exposure Limits, mg/m^3**	**Hazard class(es)**	**CAS No.**	**EC No. (if available)**
Sylvic oil maleates	have not been established	absent	68152-93-2	268-859-6
Oleine maleates	have not been established	absent	85711-46-2	288-306-2
Maleic anhydride	1	2	108-31-6	203-571-6

APPLICANT: 3AO "Torgovyi Dom Orgkhim" (CJSC), **Nizhny Novgorod**
(Company name) (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): 57184037

Emergency Phone: (831) 259-77-47

Head of the applicant company: /Signature/ /N.V. Khodov/
(Signature) (Full name)
Place of Seal

Seal 2:
illegible illegible

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”

OKP - All-Russian Classifier of Products

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

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

The Safety Data Sheet corresponds to:
- recommendations of UN ST/SG/AC.10/30 “CHS”
- EU Regulation “Regulation No. 1907/2006 concerning Registration, Evaluation, Authorization and Restriction of Chemicals (REACH Regulation - Registration, Evaluation, Authorization and Restriction of Chemicals) ”, Appendix II

Signal word - one of the two words s.s. “Danger!” or “Cautious” (or “is not available”) should be indicated in accordance with GOST 31340-2007 “Warning marking of the chemical products. General requirements”.

Information on the registration of the product – number and date of the state registration, the certificate number and/ or the Russian Register of the Potentially Hazardous Chemical and Biological Substances Number should be provided.

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

1.1. Product identifier

1.1.1 Technical name:	Adhesive additive “Aftisotdor” grade B.
1.1.2 Relevant identified uses: (including uses advised against)	The product is intended for use as a bituminous and polymer binder, and as a component in the industrial rubber goods (IRG) manufacturing and different composite materials [1].

1.2. Manufacturer/supplier information

1.2.1 Full company name:	3AO “Torgovyi Dom Orgkhim” (CJSC),
1.2.2 Address (postal):	29-D, prospect Gagarina, Nizhny Novgorod, 603057, Russia Legal address: 17, Borskaya ul., Nizhny Novgorod, 603053, Russia
1.2.3 Emergency telephone number (including time-limits):	+7 (831) 259-77-47
1.2.4 Fax:	+7 (831) 259-77-47

2. Hazard(s) identification

2.1 Classification of the product in general: (information on the hazard classification in accordance with the legislation of the Russian Federation (GOST 12.1.007-76) and GHS (upon approval))	The product is designated as moderately hazardous by impact on the human health. The product has an irritant effect, may cross through unaffected skin [1, 12]. Hardly combustible liquid [1]. The product constitutes a danger to the environment, especially to water bodies and soil [11, 17]. In the process of manufacturing and usage of the additive, resins which are the composite of adipic tar oil, sylvic oil, maleic anhydride and oleinic acid may be released into the environment. Oleinic acid has a sensitizing effect [11].
2.2. Occupational hygienic standards for the product: (OELw.a. or SRLI)	have not been established [4, 12].
2.3 Information on warning marking: (under GOST 31340-07)	**Symbols:** none. **Signal word:** Cautious **Hazard description:** upon eye contact the product causes irritation, upon skin contact it causes mild irritation. **Preventive measures:** Wash hands thoroughly after handling. If skin irritation occurs, seek medical attention. In the case of eye contact: rinse eyes carefully with plenty of water for several minutes. Remove contact lenses, if worn, and if it easy to do. Go on rinsing the affected eye. Get medical attention if skin and eye irritation persists [2].

3. Composition/information on components

3.1 Information on products in general

3.1.1 Chemical name (under IUPAC): None, the mixture is of established compound [1].

3.1.2 Chemical formula: None, the mixture is of established compound [1].

3.1.3 General 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): The additive has the form of carboxylic plant-based acids which are modified by the maleic anhydride [1].

3.2 Components

(name, CAS No. and EC No., weight percentage (in total should be 100 %), OELw.a. or SRLI, hazard class(es), references)

Main hazardous components (name, CAS and EU numbers)	Weight percentage, %	OELw.a. mg/m^3	Hazard class	Information sources
Sylvic oil maleates (CAS No. 68152-93-2; EU No. 268-859-6) and/ or Oleine maleates (CAS No. 85711-46.2; EU No. 288-306-2)	up to 100	has not been established	-	[1, 4, 12]
Maleic anhydride (CAS No. 108-31-6 and EU No. 203-571-6)	≤ 0.7 (unconjugated) 10-17(conjugated)	1, vapors + aerosol	2 (highly hazardous product)	[1, 4, 12]

3.3. Additional information: Weight percentage of the volatile substances should not to exceed 0.7% [1].

4. First aid measures

4.1 Symptoms:

4.1.1 If inhaled: The following symptoms may occur in case of acute toxic exposure with sylvic oil: short episodes of excitation alternating with loginess; The following symptoms may occur in case of toxic exposure with oleic acid: dizziness, headache, nausea, cough, nasopharyngeal tickling, abdominal pain [11]. The following symptoms may occur in case of exposure with maleic anhydride: sore throat, cough, hoarseness, sneezing, nosebleeds, palpitations, respiratory rhythm disturbance; nausea, vomiting, abdominal pain [11].

4.1.2 Skin contact: Irritant effect [1, 11].

4.1.3 Eye contact: Irritant effect [1, 11].

4.1.4 Ingestion: Symptoms in the cases when the adhesive was swallowed are identical to those ones in the case of adhesive inhalation.

4.2 First-aid measures to the affected

4.2.1 If inhaled: A casualty should be removed to fresh air and rest. A casualty should seek for medical attention, if needed [11].

4.2.2 Skin contact: Remove an excessive mass of the additive with cotton wool ball, flush contaminated skin with large amounts of water and soap [1, 11].

4.2.3 Eye contact: Eyes should be thoroughly flushed with water for 15 minutes with well-opened palpebral fissure. In the case of necessity, a casualty should seek for medical attention [1, 11].

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[1]Gallic oil may be released into the environment (OELw.a. and hazard class have not been established) or oleic acid (OELw.a.: - 5/ - mg m^3, aerosol, hazard class 3) [4, 11].

4.2.4 Ingestion:	Increased fluid intake, activated carbon, saline purge. In the case of necessity, a casualty should seek for medical attention [11].
4.2.5 Counter-indictions:	Induced vomiting is forbidden, if a casualty is unconscious [11].
4.2.6 First aid equipment (medical kit):	Eye bath, soap, baking soda, activated carbon, saline purge.

5. Fire-fighting measures

5.1. Characteristics of fire/explosion hazards:	The product is not explosion-hazardous. It is a hardly combustible liquid, which burns in the case of direct contact with a source of fire [1].
5.2. Indicators of fire/explosion hazards: (a list of indicators under GOST 12.1.044 and GOST R 51330.0)	Flash point is 210 °C. Ignition point is 247 °C. Self-ignition temperature is 327 °C [1].
5.3. Hazards arising from combustion products and/or thermal decomposition:	Carbon monoxide is a dangerous product of thermal decomposition and combustion (on the analogy of resina maleates) [11]. The following symptoms may occur in case of CO toxic exposure: headache, knock at the temples, dizziness, dry cough, chest pain, nausea, vomiting, possible excitation followed by visual and auditory hallucinations, redness of the skin, palpitations. OELw.a. = 20 mg/m^3; OELatm.a. = 5/3 mg/m^3
5.4. Suitable extinguishing media:	Water, steam, inert gas, asbestos cloth, chalk, sand, foam and carbon dioxide fire extinguishers [1].
5.5. Not appropriate extinguishing media:	No data available [1].
5.6. Personal protective equipment during fires extinguishing: (fire-fighters’ PPE)	If ignition occurs, a fire-protection suit complete with self-rescuer apparatus СПИ-20 [21].
5.7. Specific hazards:	Fire should be stamped out from a safe distance. Containers should be cooled with finely-divided spray of water [13].

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. Remove sources of fire. Take fire precautions. Do not smoke. Prevent product exposure into canalization, “on relief” or into water bodies. [13, 21].

With a duration of work in an atmosphere containing carbon monoxide, no more than 1 hour, the maximum permissible concentration of carbon monoxide can be increased up to 50 mg m^3, with a duration of work no more than 30 minutes - up to 100 mg/m^3, with a work duration of no more than 15 minutes - 200 mg/m^3. Repeated work under conditions of high carbon oxide content in the air of the working area can be performed with a break of at least 2 hours [4].

6.1.2 Personal protective equipment under alarm conditions: (emergency response team and personnel)	In emergency situations, and during combustion of the adhesive additive, a BKF filter respirator should be used [1].

6.2. Response measures to emergencies and accidents

6.2.1 Spill, leak and releases procedure: (including precautions to protect the environment)	When spilling the additive, it is necessary to collect it in a separate container; wash the spill site with soda solution and hot water, wipe it with a dry cloth; when spilling on the open area, fill the spill site with sand, with its subsequent removal and neutralization in accordance with SanPiN No. 2.1.7.1322-03 [1.19]. OEL should be checked before allowing personnel to work in the territory [13]. Fire should be stamped out from a maximal possible safe distance. Containers should be cooled with water (see Section 5).

7. Storage and handling of chemicals during loading-unloading operations

7.1. Safety measures when chemicals handling

7.1.1 Safety measures and collective protective equipment: (including a system of fire and explosion hazard measures)	Supply and exhaust ventilation of the production premises, primary fire-fighting appliances, emergency lighting system. Pressurization of the equipment and communications. Controlled waste collection and disposal [1, 13]. Avoid direct skin and eye contact. Use personal protective equipment (see Section 8). Operational works with adhesive additives should be performed away from fire and sources of sparking while meeting the requirements of fire safety [1].
7.1.2 Measures for protection of the environment:	Exclude uncontrolled release of the product into the environment, and, in the first place, release into water bodies, basements, canalization and soil.
7.1.3 Recommendations for safe displacement and transport:	The transportation of the additive is performed in covered vehicles. In accordance with GOST 19433, the product does not apply to the dangerous goods [1].

7.2 Storage

7.2.1 Safe storage conditions and terms: (including storage warranty period)	The product should be stored at indoor applications at the temperature not exceeding + 80 °C. at a distance of at least 1 m from heating devices [1]. Storage warranty period is 12 months from the date of manufacturing. Upon expiration of the storage warranty period, the additive may be used for its intended purpose only if its quality meets the requirements of the Specification [1].
7.2.2 Storage incompatibility:	Oxidizers, acids, alkalis (on the analogy of resina maleates) [11].
7.2.3 Recommended packing materials:	Clean, dry, tight-fitting steel drums Bs P-200 under GOST 13950. Railroad or heated road tank cars [1].

	Usage of the other types of contraries, ensuring the safety of the finished product, is allowed after consultation with consumer [1].
7.3 General safety rules and storage precautions in household use:	Not used in household.

8. Engineering controls and personal protective equipment

8.1 Occupational parameters subject to compulsory control (OELw.a. or SRLI):	Under conditions of manufacturing and usage of the adhesive additive, no harmful substances are released in concentrations that are dangerous to the human health. [1].
8.2 Measures to ensure the content of harmful substances in permissible concentrations:	Premises where operational works with the additive are performed should be equipped with a mechanical general exchange supply and exhaust ventilation.
8.3 Personal protection equipment of the personnel	
8.3.1 General advice:	Avoid direct contact with the product. Do not smoke or eat at the workplace. Wash hands with soap and warm water before eating, smoking and after work. Careful removal of the product from the skin using special pastes, skin cleansers and detergents. Careful cleaning and washing of overalls. Usage of protective pastes (ointments). Availability of personal protective equipment. All personnel who perform works with the additive, should undergo periodic and preliminary, upon admission to work, medical examinations in accordance with the order of the Ministry of Health of the Russian Federation No. 90 dated March 14, 1996, [1].
8.3.2 Respiratory Protection (RPE types):	In emergency situations, and during combustion of the adhesive additive, a BKF filter respirator should be used [1].
8.3.3 Protective overalls (materials, type):	Protective glasses, overalls, shoes, gloves, rubber gloves [1].
8.3.4 Personal protective equipment when using the product in household:	Not used in household.

9. Physical and chemical properties

9.1 Physical properties (physical form, color, odor)	Viscous liquid from dark brown to black [1]. A sharp odor of gall oil is possible [11].
9.2 Parameters characterizing the basic properties of chemical products, primarily hazardous:	Hardly combustible product [1]. Solubility of sylvic oil in water is < 1000 mg/L at 20 °C; very soluble in fats [11].

10. Stability and Reactivity

10.1 Chemical stability:	The product is stable under the normal conditions.
10.2 Reactivity:	In general, no data available on the additive [1]. Primary components of the additive: sylvic oil esterified, oxidized; forms salts, amides, anhydrides.

	Maleic anhydride is hydrolyzed, aminated, esterified, acylated, copolymerized; forms cyclic adducts [11].
10.3 Conditions to avoid: (including hazardous effects when contacting with incompatible substances and materials)	The product may ignite in contact with open flame sources. Incomplete combustion or thermal destruction may lead to the formation of toxic products (see Section 5).

11. Toxicological information

11.1 General exposure characteristic: (assessment of health exposure risk (toxicity) and the most significant hazard exposure)	The product is designated as moderately hazardous by impact on the human health [1].
11.2 Routes of exposure:	In the case of inhalation of vapors and aerosols, in case of contact with skin and mucous membranes of the eyes, if swallowed.
11.3 Target organs, tissues and systems of a human:	Eyes, skin, respiratory organs [1]. According to the primary components: in the case of prolonged or frequent contact with sylvic oil, the following abnormalities may occur: damage of the liver, kidneys, central nervous system, gastrointestinal tract, the morphological composition of the peripheral blood. Oleic acid affects central nervous and respiratory systems, the gastrointestinal tract, liver, kidneys, and peripheral blood. Maleic anhydride affects central nervous and respiratory systems, gastrointestinal tract, liver, kidneys, skin, eyes [11].
11.4 Data on health hazards of the direct contact with the product, and delayed effects:	The product has slightly significant effect on the skin and mucous membranes of the eyes, may cross through intact skin. [1, 12].
(irritant effect on the upper respiratory airways, eyes, skin; including skin-resorptive effects and sensitization)	Primary components: sylvic oil has no sensitizing effect. Maleic anhydride has a sensitizing effect on contact with skin (allergic dermatitis) and inhalation (bronchial asthma) under production conditions [11].
11.5 Information on delayed hazards:	Cumulativity is weak [1].
(effects on the reproductive function, carcinogenicity, cumulativity, and other)	Effect on the reproductive function and carcinogenic effect of the additive in general and its main components have not been studied. [1, 11, 12]. Oleic acid has a mutagenic and carcinogenic effect on animals (data were not confirmed by IARC) [11]. Carcinogenic effects on the human health, embryotropic, gonadotropic and teragenic effects of oleic acid have not been studied [11]. Maleic anhydride has an effect on the reproductive function (has embryotropic and mutagenic effects); a weak carcinogenic effect on animals has been established. The mutagenic effect of maleic anhydride is manifested in high doses in a test on mammalian cells [11].
11.6 Indicators of acute toxicity:	DL_{50} = 4600 ± 700mg/kg (oral, rats) [20].

(DL_{50}, route of entry (oral, dermal), type of animal; CL_{50}, exposure time (hour), type of animal)	For primary components: - sylvic oil: DL_{50} = 7600 mg/kg (oral, rats); DL_{50} = 4600 mg/kg (oral, mice); DL_{50} = 3000 mg/kg (i.p., mice); CL_{50}- is not achieved [11]. - maleic anhydride: DL_{50} = 610 mg/kg (dermal, rats); DL_{50} = 2620 mg/kg (dermal, rabbits); DL_{50} = 400 - 625 mg/kg (oral, rats) [11].
11.7 Dosages (concentrations) of minimal toxic effect:	No data available for the additive and its main components [1]. For primary components: - sylvic oil: Lim = 900 mg/kg (oral, 10 days, rats, insignificant decrease in body weight, changes in the phagocytic activity of leukocytes); Lim = 1.5 mg/kg (oral, 6 months, rats, no functional and morphological changes are observable) [11]; - oleic acid: Lim_{ac} = 30 mg/m^3 (inh., 4 hours, rats, according to the changes in behavioral reactions, biochemical changes in blood serum, positive skin provocation tests, increase in the rates of specific agglomeration reactions and specific lysis of leukocytes); Lim = 390 mg/kg (s/c, rabbits, 17 weeks, tumors were found at the injection site, carcinogen according to the RTECS criteria) [11]; - maleic anhydride: Lim_{ac} = 47 mg/m^3 (inh., 4 hours, rats (according to the change in the general toxic effect indicants)); Lim_{ir} = 1.2 mg/m^3 (inh., 1 min, human (according to the irritant effect on the mucous membranes of the eyes and upper respiratory tract)); Lim_{ir} = 5 mg/m^3 (inh., 15 min., human (according to the irritant effect on the mucous membranes of the eyes and upper respiratory tract)); Lim_{ir} = 10-12 mg/m^3 (inh., 1 h, rabbits (according to the changes in the frequency of breath)); Lim_{ir} = 4 mg/m^3 (inh., 15 min, rabbits (irritant effect on the mucous membranes of the eyes and upper respiratory tract)); Lim_{olf} = 1.3 mg/m^3 (inh., human (according to the odor)); TC_{eis} = 1.65 1.3 mg/m^3 (inh., according to the change in the eye illumination sensitivity); $TC_{chr.}$ = 0.08 mg/m^3 (inh., 24 hours for 3 months, rats (according to the change in the leukocytes count in peripheral blood)); TD_{chr} = 2.5 mg/kg (oral, 6 months, rabbits (according to the violation of the glycogen-forming function of the liver, phagocytic activity of leukocytes, mild degenerative changes in the liver, kidneys, spleen and mucous membrane of the gastrointestinal tract) [11].

12. Ecological Information

12.1 General characteristics of environmental impact: (ambient air, watercourses, soil)	The additive is dangerous for the environment, especially for water bodies and soil. In the process of manufacturing and usage of the additive, sylvic

oil and maleic anhydride (information is given on the analogy of resina maleates) may release to the environment [11, 17]. According to the classification of danger of water pollution (WGK, Germany), sylvic oil is classified as class 2 (water pollutants); maleic agidride is classified as class 1 (low-hazard substances with respect to the water pollution) [11].

12.2 Environmental effects: The additive releases to the environment if the rules of transportation, usage, storage and disposal are not complied with; in the process of wastes incineration, as a result of emergency situations (spills, leaks, emissions, fires, etc.).

12.3 Observable features of exposure: Odor in the atmospheric air.
Changes in the organoleptic properties of water (specific odor and taste, oily skin on the surface of water), a change in the sanitary regime of water bodies.
Bottom and coastal sediments, violation of self-cleaning processes, biodegradation of water bodies. Damage to flora and fauna. Soil degradation [1, 17].
Threshold concentrations for the effect of maleic anhydride on: the organoleptic properties of water – $TC_{o.o}$ and taste - 1 mg/L (according to the odor and taste); general sanitary regime of water bodies - $TC_{tot.}$ - 12 mg/L [11].

12.4. The most important characteristics of environmental effects

12.4.1. Hygienic standards: (exposure limits in air, water, including fishery waters, soil)		In general no data available on the additive [1].			
Components	OEL in the atmospheric air mg/m3 (LNV[3], hazard class)	OEL water[4] , mg/L, (LNV, hazard class)	OELs fish[5]. (LNV, hazard class)	OELsoil mg/kg (LNV)	Information sources
Sylvic oil maleate	0,5 (SRLI, Sylvic oil light/ foliose)	has not been established	0.1 (light sylvic oil) (tox., 4)	has not been established	[4,5,7,12,18]
Oleine maleates	0.1 (oleic acid)	0.5 (oleic acid) (tot., 4)	0.1 mg/L (Oleic acid) (tot., 4)	has not been established	[4,5,7,12,18]
Maleic anhydride	0.2/0.05 (refl.-res., 2)	1 (org. odor, 4)	0.01 (tox., 4)	has not been established	[4,5,7,12,18]

12.4.2 Ecotoxity: (CL, EC for fish, Daphnia magna, algae, etc.)
In general, no data available on the product and its component [1].
According to the primary components:
Sylvic oil:
CL_{50} = 5-10 mg/L (fishes - Brachydanio rerio (Danio striped), 96 h);
EC_{50} = 39.7 mg/L (Daphnia magna. 48 h);
EC_{50} = 0.87 - 2.73 mg/L (algae - Selenastrum capricornutum, 72 h) [11].
Oleic acid:
CL_{50} = 205 mg/L (fishes (Pimephales promelas), 96 hours) [11].
Maleic Anhydride:
CL_{50} = 115 - 275 mg/L (fishes - Leuciscus idus melanotus

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[3] 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).
[4]Water of utility and drinking water bodies and social-community water consumption.
[5] Water of fishery-intended water bodies (including marine)

	(Golden Orpheus), 48 hours); CL_{50} = 150 mg/L (fishes – Lepomis macrochirus (the the bluegill), 24 h); CL_{50} = 235 mg/L (fishes – Gambusia affinis (Gambusia), 96 h); CL_{100} = 260 mg/L (fishes – Oncorhynchus mykiss (Salmon), 24 h); EC_{50} = 88 mg/L (Daphnia Magna, 24 hours); EC_{50} = 29 mg/L (algae – Scenedesmus subspicatus (Chlorococcales), 72 h) [11].
12.4.3 Distribution and environmental fate through biodegradation and other processes (oxidation, hydrolysis, etc.):	In general no data available on the additive [1]. Primary components: sylvic oil, oleic acid and maleic anhydride are transformed in the environment. Sylvic oil is extremely stable under abiotic conditions ($\tau_{1/2} > 30$ days); COD = 2100 mg/g of the product. Maleic anhydride is stable under abiotic conditions ($\tau_{1/2 =}$ 1-7 days); biological dissimilation: BD = (BOD_5 /COD) * 100% = 61.2% (light); BOD_5 = 0.6 mgO/dm^3, COD = 0.98 mgO/dm^3. COD for oleic acid 2.54 [11].

13. Waste (residuals) disposal considerations

13.1. Safety measures when handling wastes from usage, storage, transportation, etc.	General and local supply and exhaust ventilation of production premises. Usage of personal safety equipment (see Sections 5, 7 and 8).
13.2 Information on places and methods of neutralization, disposal, or removal of substances (material) wastes including containers (packing):	Waste should be collected in separate closed metal containers and sent for regeneration or used as a raw material. When it is impossible to dispose a waste, in consultation with environmental authorities and sanitary and epidemiological surveillance authorities, incineration is used in special kilns [19].

14. Transportation information

14.1 UN Number: (in accordance with the UN recommendations on carriage of dangerous goods (typical regulations), last edition)	UN Number is not available [1,15].
14.2 Proper shipping name and transportation name:	Shipping name is not available. Transportation name is Adhesive additive “Aftisotdor” grade B.
14.3 Types of applicable transport vehicles:	All types of vehicles in accordance with regulations on carriage of goods, which are stand for this type of transport [1].
14.4 Classification of dangerous goods: (according to GOST 19433 and UN recommendations on carriage of dangerous goods)	In accordance with GOST 19433-88, the product is not classified as a dangerous cargo [8]. According to UN recommendations, the product not classified as dangerous cargo [1,15].

14.5 Transportation labelling: (manipulation signs; basic, additional, and informational records)	Transportation labeling (handling signs and informational signs) may be used in accordance with GOST 14192-96. including handling signs: “Protect from sunlight”, “Protect from moisture”, “hermetic packaging” [1].
14.6 Packing group: (in accordance with the UN recommendations on carriage of dangerous goods)	Not required [15]
14.7 Information on hazards when transporting by road (EMC):	Not applicable [3]
14.8 Emergency cards (for rail, overseas and other type of transportation)	Not required [22]
14.8 Information on hazards concerning international 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)	Danger code under Agreement on International Goods Transport by Rail is not applicable [15].

15. State and international regulations

15.1 State regulations 15.1.1 The RF laws:	Federal Law No. 89-FZ“On production and consumption of wastes” dated July 18, 1998. Federal law No. 52-FZ “On Sanitary Biological Welfare of the Population” dated March 30, 1999. Federal Law No. 7-FZ “On Environmental Protection" dated of January 10, 2002.
15.1.2 Documents regulating requirements for protection of human and environment (certificates, SHC, certificates, etc.)	Sanaitary and Health Certificate No. 52.НЦ.05.229.П.001407.07.08 dated July 2, 2008 is available for the product adhesive additive “Aftisotdor” [12].
15.2 International Conventions	
15.2.1 International Conventions and Agreements: (whether regulated by Montreal Protocol, Stockholm Convention, etc.)	Not subject to international conventions and agreements.
15.2.2. Warning marking valid in EU countries: (hazard symbols, risk and safety phrases, etc.)	**Danger symbols:** none. **Risk phrases**: none; **Precautionary measures:** S7 – the product should be stored in tightly closed containers; s16 – the product should be protected from fire - do not smoke; S24/25 – personnel should avoid contact with skin and eyes [1.13].

16. Other information

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

16.2 List of References Used while Comprising Safety Data Sheet

1 TS 2294-055-58604719-2008. Adhesive additive “Aftisotdor”.

2 GOST 31340-2007. “Warning marking of the chemical products. General requirements”–M.: Standards Pbl.

3 Regulations for the transport of dangerous goods by road (as amended by orders of the Ministry of Transport of the Russian Federation No. 37 dated June 11, 1999 and No. 77 dated October 14, 1999), - St.-P.: DEAN Publishing, 2002.

4 Occupational exposure limits (OELs) and safe reference levels of impact (SRLI) of harmful substances in air at workplace; Health Standards. HS 2.2.5.1313-03/ HS 2.2.5.2308-07 - M: Russian Register of Potentially Hazardous and Biological Substances of the Ministry of Health of the Russian Federation. 2003/2007.

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