SAFETY DATA SHEET

Registered as	
SDS Reg. No. **53505711.24.*39256***	on September 07, 2015
	Valid until September 07, 2020
Federal Agency on Technical Regulation and Metrology (Rosstandart)	
Information and Analytical Centre "Safety of Substances and Materials" (FGUP "VNII SMT")	Director: /*signature*/ Seal: *Information and Analytical Centre "Safety of Substances and Materials" (FGUP "VNII SMT")*

NAME:	

Technical Name (RD*)	Alcohol Ether Concentrate	
Chemical Name (IUPAC)	N/A	
Trade Name	Alcohol Ether Concentrate (A and B)	
Synonyms	N/A	
	OKP† Code: 242290	TNVED‡ Code: 3811190000

ID code and name of the basic regulatory, technical or informational document for the Product (GOST, TU, OST, STO, (M)SDS).

TU 2422-012-53505711-2005 incl. Rev. 1-4 "Alcohol Ether Concentrate"

HAZARDS IDENTIFICATION

Signal word: CAUTION
Short (in words): Moderately hazardous substance under GOST 12.1.007. Irritating, toxic and sensibilizing action. Harmful in contact with skin. Flammable and fire/explosion hazardous liquid. Environmentally hazardous.
Detailed: as specified in 16 sections of this Safety Data Sheet

BASIC HAZARDOUS COMPONENTS	**TWA mg/m^3**	**Hazard Class**	**CAS No.**	**EC No.**
Butan-1-ol	30/10	3	71-36-3	200-751-6
2-Methylpropanol-1	10	3	78-83-1	201-148-0
2-Ethylhexan-ol	10	3	104-76-7	203-234-3

APPLICANT: Sibur-Khimprom CJSC (entity name), Perm (city)

Applicant's Status: manufacturer, supplier, seller, ~~exporter, importer~~ (cross out as appropriate)

OKPO§ Code: 53505711 Emergency phone: (342) 290-87-05

Applicant's Contact Person: /signature/ K.N. Yugov (full name)

Seal: *Sibur-Khimprom CJSC*

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* RD = Regulatory Documentation /*translator's note*/

† OKP = All-Russian Classifier of Products /*translator's note*/

‡ TNVED = Commodity Nomenclature of Foreign Economic Activity /*translator's note*/

§ OKPO = General Classifier of Enterprises and Organizations /*translator's note*/

This Safety Data Sheet (SDS) complies with UN GHS Recommendations ST/SG/AC.10/30

IUPAC	International Union of Pure and Applied Chemistry
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
OKP	All-Russian Classifier of Products
OKPO	General Classifier of Enterprises and Organizations
TN VED	Commodity Nomenclature of Foreign Economic Activity
CAS No.	Chemical Abstracts Service No.
EC No.	European Chemical Agency Number
MAC	Maximum Allowable Concentration of Harmful Substances in Occupational Air, mg/m^3
Safety Data Sheet	*Russian translation*: Chemical Safety Data Sheet (substance, mixture, material, industrial wastes)
Signal Word	A word used to capture a reader's attention with potential chemical hazard and selected according to GOST 31340-2013

1. Identification of the Chemical Product and Manufacturer/Supplier

1.1 Product Identifier

1.1.1 Name of Substance	Alcohol ether concentrate [1].
1.1.2 Relevant identified uses of the substance (including uses advised against)	Alcohol ether concentrate is intended to be used as a solvent as well as a multifunctional oxygenate additive to improve knock characteristic of gasoline and phase stability of gasoline-alcohol blends, and for other purposes. There are no limitations if used for its intended purpose [1].

1.2 Details of the manufacturer/supplier

1.2.1 Full official company name	Sibur-Khimprom JSC
1.2.2 Address (legal and postal)	98 Promyshlennaya Str., Perm, Russian Federation 614055
1.2.3 Telephone, including emergency phone for consultations, and time limits	(342) 290-87-05 (24/7) – dispatcher (342) 290-89-01 (from 7 am to 3 pm – Moscow time) – Chief Engineer
1.2.4 Fax	(342) 290-83-72, 290-86-60
1.2.5 E-mail address	Mail-shp@sibur.ru

2 Hazard(s) Identification

2.1 General hazard

(information on hazard classification according to the Russian legislation (GOST 12.1.007-76) and SGS (GOST 32419-2013, GOST 32423-2013, GOST 32425-2013)

By its health effect, alcohol ether concentrate refers to Hazard Class 3 under GOST 12.1.007, i.e. moderately hazardous [1,5]. According to GOST 32419 (SGS) it is classified as a chemical product [33]:

- flammable liquid class 3
- acute toxicity class 5
- skin irritation class 2
- express eye irritation class 2A
- narcotic and irritant effect class 3.

2.2. Safety labelling according to GOST 31340-2013

2.2.1 Signal word	Warning
2.2.2 Hazard pictograms	
2.2.3 Hazard statement codes (H-statements)	H226: Flammable liquid and vapour. Vapours form explosive air-gas mixtures H302: Harmful if swallowed H315: Causes skin irritation H319: Causes serious eye irritation H335: May cause respiratory irritation H336: May cause drowsiness or dizziness

3 Composition/Information on Ingredients

3.1 Information on the product

3.1.1 Substance name (as per IUPAC) — None [1].

3.1.2 Molecular formula — None [1].

3.1.3 Total composition characteristics (including brand assortment; production process) — Alcohol ether concentrate as a by-product of butyl alcohol and 2-ethylhexanol production is a mixture of aliphatic alcohols C_4, C_8 (up to 60%) containing admixtures of ether, aldehydes and high-boiling components. There are two brands: A and B [1].

3.2 Mixture Components

(name, CAS and EC numbers, content (to be 100% in total) %, MAC or SRLI, hazard class, reference data sources)

Table 1 [1,2,5,9,10,11]

Components (name)	w/w%	Occupational exposure standards		CAS #	EC #
		MAC, mg/m^3	Hazard Class		
A mixture of aliphatic alcohols containing admixtures of ether, aldehydes and high-boiling components, including Butane-1-ol, n-butanol, 2-methylpropanol-1 (isobutanol), 2-ethylhexane-1-ol*	100%	None	None	None	None
	≤ 60%	30/10 (v)	3	71-36-3	200-751-6
		10 (v)	3	78-83-1	201-148-0
		10 (a)	3	104-76-7	203-234-3
* compounds that require special protection of eyes and skin when handling; v = vapour; a = aerosol					

4 First Aid Measures

4.1 Most important symptoms and effects

4.1.1 Inhalation or ingestion — Laboured breathing, loss of coordination, narcotic state, irritation of upper respiratory tracts, nausea, vomiting [11]. Throat irritation, coughing, dizziness, weakness [8, 10].

4.1.2 Skin contact — Redness, dryness, itching [8].

4.1.3 Eye contact — Smarting, watering [8].

4.2 First Aid Measures

4.2.1 If inhaled — Move the exposed person to fresh air. Keep warm and at rest. If respiration stops or shows signs of failing, apply artificial respiration. Get medical attention [1].

4.2.2 Skin contact — Wash skin with plenty of running water. Get medical attention [1].

4.2.3 Eye contact — Wash with running water. Transport the casualty to an eye doctor.

4.2.4 If swallowed — Drink plenty of water; take activated carbon, saline purge. Get medical attention [1].

4.2.5 Contra indications — None known [1,9,10,11].

5 Firefighting Measures

5.1 Fire and explosion hazards
(as per GOST 12.1.044-89)

Alcohol ether concentrate refers to flammable liquids under GOST 12.1.044 [1,6]. Flammable if exposed to open flame or sparks. Vapours form explosive mixtures with air. Containers may explode if heated. Fire or explosion may cause burns and other injuries [8]. Occupational fire and explosion prevention measures shall be provided according to GOST 12.1.004, GOST 12.1.010 [1,6,20].

5.2 Fire and explosion hazard indicators
(nomenclature according to GOST 12.1.044-89 and GOST 30852.0-2002)

Indicator	n-butanol	Isobutanol	2-ethyl hexanol
Flash point, °C: open cap closed cap	 41 35	 - 28	 82 77
Fire point, °C:	43	39	86
Self-ignition point, °C:	340	390	66
Temperature limits of flame propagation, °C:	3-67	26-60	70-108
Flammability limits, vol.%	1.8-10.9	1.84-11.4	0.9-6.2

Explosive mixture of product vapours and air: category IIA per GOST 30852.11, group T2 per GOST 30852.5 [1,7,9,10,11].

5.3 Hazardous combustion and/or thermal decomposition products

Burning causes formation of toxic substances, i.e. carbon oxides [9]. Mild poisoning: w/o loss of awareness or short-time faint, sleepiness, dizziness, sometimes vomiting; moderate severity: loss of consciousness and, thereafter, general weakness, memory blackouts, movement disorders, muscle spasms; severe injury: long-term unconsciousness, clonic or tonic spasms, involuntary urination or defaecation (under carbon monoxide) [30].

5.4 Extinguishing media

Chemical or air-filled foam, sand, water spray, PBS-3 powder, CO2; total flooding for rooms [1]. Foams that are easily destroyed on contact with polar liquids shall not be used for extinguishing alcohols (polar liquids) [7].

5.5 Unsuitable extinguishing media

High-pressure water jets [7].

5.6 Special protective equipment for firefighters

Wear canvas protective suit complete with self-contained breathing apparatus SPI-20 [8].

5.7 Special firefighting procedures

N/A [8].

6 Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 General emergency and accidental release measures	Isolate the hazardous area within a minimum 200-meter radius. Adjust the specified distance using chemical survey data. Remove unauthorized persons. Use protective equipment in danger area. Follow fire safety requirements. Do not smoke. Remove fire and spark sources. Stay at the windward side. Avoid low-lying areas. Provide first aid for the injured. Transport people from the hazardous area for medical examination [8].
6.1.2 Personal protective equipment for Emergency Response Teams	Emergency Response Teams shall use KIH-5 Self-Contained Suit complete with IP-4M Gas Mask and ASB-2 Breathing Apparatus [8].

6.2 Environmental precautions

6.2.1 Spillage, leakage or scattering (including spill procedures, precautions and environmental protection measures)	Inform competent sanitary and epidemiological control authorities. Do not touch the spilled substance. Remove leakage following the appropriate safety measures. Transfer the liquid by pumping into a dedicated, corrosion proof, appropriate and properly labelled container. Call fire brigade and gas emergency service. Fence out spills with earth mounds. Do not allow entrance in stretches of water, drainage and sewage systems. Use water spray to isolate vapours. Cut off contaminated soil layer, collect and remove for proper disposal. Backfill the cuts with fresh soil. Surface of rolling stock shall be rinsed with water. The ground surface (separate areas) shall be burnt to eliminate the threat of soil contamination; plough the soil [8].
6.2.2 Fire response procedure	Keep away from burning containers. Cool off the containers at proper distance. Extinguish the burning containers staying as far away as possible [8].

7 Handling and Storage

7.1 Precautions for safe handling

7.1.1 Engineering measures	Production of alcohol ether concentrate shall comply with General Rules on Explosion Safety for Explosive and Fire Hazardous Chemical/Petrochemical Plants and Oil Refineries [31]. The following safety signs shall be used as per GOST R 12.4.026: P02 – “Open flame and smoking prohibited”; W01 – “Fire hazard. Flammable substances”. Production equipment shall be sealed and proper ventilation provided. Open flame and sparking sources shall not be allowed. All

	electrical equipment and lighting shall be explosion-proof; appliances and pipelines must be earthed. Comply with safety rules specified in GOST 12.1.018 concerning protection from static electricity when performing tank filling operations [1, 27].
7.1.2 Environmental measures	Basic environmental protection measures include the use of sealed equipment and engineering systems to exclude discharge of the product into coil or water basins. Air pollution control shall be arranged in accordance with SanPIN (Sanitary Regulations and Norms) 2.1.6.1032. Surface water control is effected according to SanPIN 2.1.5.980.
7.1.3 Safe transportation	Bulk product shall be transported by road tankers under GOST R 50913 or by rail tankers owned or rented by a consignor (consignee) and made of carbon steel (15-1547, 15-1566 models) in accordance with the Regulations concerning the Carriage of Dangerous Goods applicable for the given mode of transport. The tankers shall be filled with the product according to their capacity and possible product expansion due to temperature drops during transportation. Alcohol ether concentrate may be transported from the manufacturer to consignee via pipelines. If packed in barrels as per GOST 6247 or GOST 13950, alcohol ether concentrate shall be transported by road (railroad carriage is not suitable). After filling, the container shall be closed in accordance with the normative documents and sealed using the lock and seal device as per GOST 31281 or any other seal as per GOST 18677 or GOST 18680. Filling coefficient is 0.9. The package shall comply with GOST 26319 [1,25,28,29].

7.2 Safe storage of chemical products

7.2.1 Conditions for safe storage (including warranty period and shelf time; incompatible substances and materials)	Alcohol ether concentrate shall be stored at consignor/consignee warehouses in hermetically sealed barrels in locked storage rooms or steel tanks complying with fire safety regulations. Storage temperature: from minus 40 °C to plus 40 °C. According to GOST 12.1.004, alcohol ether concentrate refers to hazardous substances and shall be stored in warehouses of I or II Fire Resistance Rating. The manufacturer warrants the alcohol ether concentrate's quality within 3 months from the

	date of manufacture when transported and stored by the consumer according to the requirements. Upon expiry of the warranty period, alcohol ether concentrate may be used by the consumer after confirmation that its quality conforms to specifications [1]. Storage compatibility shall comply with GOST 12.1.004, Annex 7 [1, 20]. Any contact with oxidisers, acids, alkalis, combustible materials or flammable liquids is not allowed.
7.2.2 Containers and packaging (including materials)	Alcohol ether concentrate is normally filled into steel barrels under GOST 6247 (Type 1), GOST 13950 (Type 1A1) capacity 100 dm^3, 200 dm^3, accordingly [1].
7.3 Safety measures and domestic storage conditions	The product is not used domestically.

8 Exposure Controls/ Personal Protection

8.1 Occupational Exposure Limits (Occupational MAC or SRLI)	MAC (2-ethylhexane-1-ol*) = 10 mg/m^3, aerosol, Hazard Class 3; MAC (2-ethylhexane-1-ol) = 10 mg/m^3, vapours, Hazard Class 3; MAC (butane-1-ol) = 30/10 mg/m^3, vapours, Hazard Class 3 [1,2].
8.2 Exposure Controls	Hermetically sealed equipment and containers for storage and transportation, combined extract-and-input ventilation and local exhaust systems; occupational air pollution control [9,10,11,14].
8.3 Personal Protective Equipment	
8.3.1 General recommendations	Avoid direct contact with the product. Use PPE. Follow personal hygiene rules. Pregnant women and persons under age of 18 shall not be allowed to handle the product. All workers shall pass preliminary (before employment) and periodic medical examinations [13,15,18,19].
8.3.2 Respiratory protection equipment (types of RPE)	Industrial gas mask with canister Grade A or breathing apparatus per GOST 12.4.122; with filters Grade A Class 3 per GOST 12.4.245 or combined filter DOT [1, 19].
8.3.3 Protection equipment (material and type) (special clothes, footwear, gloves, eyeglasses)	Mask-type goggles per GOST 12.4.253. Dermatological PPE per GOST 12.4.068. Gloves per GOST 12.4.103 [1, 19]. Protective gloves made of butyl resin, special boots [8, 19]. Special clothes according to sectoral norms approved according to the requirements and GOST 12.4.011 [1, 19].

8.3.4 PPE for domestic use	The product is not used domestically.

9 Physical and Chemical Properties

9.1 Physical state (aggregate state, colour, odour)	Uniform liquid, colourless or light-yellow colour, w/o mechanical impurities [1]. Strong, pronounced odour [9,10,11].
9.2 Parameters (temperature. pH, solubility, n-octanol/water factor, etc., characteristic for the given product)	

Density at 20 °C	0.750 – 0.850 g/cm^3 [1]
Boiling temperature	60 – 230 °C [1]
Solubility	Water soluble [9,10,11].

10 Stability and Reactivity

10.1 Chemical stability (indicate decomposition products for unstable products)	Stable substance under normal conditions [1].
10.2 Reactivity	Under certain conditions (catalyst presence, temperature, etc.) it may be oxidised, reduced, halogenated, dehydrated, or interact with alkali metals, organic and mineral acids. Burns at the presence of oxygen under high temperature, forming carbon oxides [9,10, 11].
10.3 Conditions to avoid (hazardous effects after contact with incompatible substances or materials)	Heating. Works with open flame [1,8,9,10,11].

11 Toxicological Information

11.1 Information on toxicological effects (including potential health effects (toxicity) and the most evident hazard features)	According to potential health effects, alcohol ether concentrate refers to the 3rd class – moderate hazardous substances under GOST 12.1.007 [1].
11.2 Routes of exposure (inhalation, oral, dermal or eye contact)	Inhalation, oral, dermal and eye contact [1,8].
11.3 Target organs, tissues or other body systems	Central nervous system, upper airway, lungs, liver, kidneys, blood system, skin, eyes [9].
11.4 Information on hazardous effects caused by direct contact with the product and consequences thereof (irritation of upper airway, eyes, skin; percutaneous and sensibilizing actions)	The substance may be irritating to skin, eyes and respiratory tract. Percutaneous and narcotic actions, slight cumulativity [1,9,10,11]. Sensibilizing action [11]. Prolonged, direct contact with the product may cause dermatitis or eczemas, damage to upper airway, liver, vegetative disorders, neurotic reactions and sensitivity distortion by polyneuritis type [18].
11.5 Information on chronic health effects (toxicity for reproduction, carcinogenicity, mutagenicity, cumulativity and other chronic effects)	Mutagenic, embryotropic, teratogenic effects. Gonadotropic, carcinogenic effects were not studied [9,10,11].
11.6 Acute toxicity (LD50, route (intragastric, dermal), animal; LC50,	Calculated acute toxicity of alcohol ether concentrate ATEmix = 2,500 mg/m^3 by

exposure time (h), animal)

formula (2) under GOST 32423 [34].

For n-butanol [9]:

	Value	Route / Exposure Time (hours)	Animal
LD_{50}, mg/kg	3,400-5,300	dermal	rabbits
LD_{50}, mg/kg	3,484	intragastric	rabbits
LD_{50}, mg/kg	2,680	intragastric	mice
LD_{50}, mg/kg	2,510-4,360	intragastric	rats
LC_{50}, mg/m^3	24,666	4	rats

For 2-ethylhexanol [10]:

	Value	Route / Exposure Time (hours)	Animal
LD_{50}, mg/kg	>3,000	dermal	rats
LD_{50}, mg/kg	3,730	intragastric	rats
LD_{50}, mg/kg	2,500	intragastric	mice
LD_{50}, mg/kg	1,970	dermal	rats
LD_{50}, mg/kg	1,860	Intragastric	guinea pigs
LC_{min}, mg/m^3	>10,834	6	rats
LC_0, mg/m^3	270-370	2	mice

For isobutanol [11]:

	Value	Route / Exposure Time (hours)	Animal
LD_{50}, mg/kg	2,460	intragastric	rats
LD_{50}, mg/kg	3,400	dermal	rabbits
LC_{50}, mg/m^3	32,200-48,300	4	mice
LC_{50}, mg/m^3	19,200	4	rats

12 Ecological Information

12.1 General information
(atmospheric air, water basins, soils, including observable action features)

Toxic to fish, daphnia and algae. Concentrations higher than 0.5mg/L (TC gen.) affect natural self-purification of water bodies. Changes organoleptic properties of water (TC org. odour = 2.5 mg/L), forms organic film on water surface [9.10.11].

12.2 Environmental impact pathways

Environmental hazards may appear in the event of an emergency or accident, when the product may enter in atmosphere or a water basin or soil.

12.3 The most important environmental impact characteristics

12.3.1 Hygienic norms
(maximum allowable concentration in atmospheric air, water, including fishery water bodies, soils)

Table 2

Ingredients	MAC/atm.air, mg/m[3] (LHI[1], hazard class) [3,9]	MAC/water[2], mg/m3 (LHI, hazard class) [4,9]	MAC/fishery[3], mg/m3 (LHI, hazard class) [9,26]	MAC or TAC/soil, mg/kg (LHI)
Butane-1-ol	0.1 refl., hazard class 3	0.1 s-t, hazard class 2	0.03 tox., hazard class 3	Not established
2-methylpropanol-1	0.1 refl., hazard class 4	0.15 s-t, hazard class 3	2.4 tox., hazard class 4	Not established
2-ethylhexan-1-ol	0.15 refl., hazard class 4	0.15 s-t, hazard class 3	0.09 tox., hazard class 4	Not established

12.3.2 Environmental toxicity indicators
(LC, EC, NOEC for fish, Daphnia magna, algae, etc.)

For n-butanol [9]:

	Value	Exposure Time (h)	Species
LC_{50}, mg/L	1,900	24	*Carassius auratus*
LC_{50}, mg/L	1,200	48	*Leuciscus idus melanotus*
LC_{50}, mg/L	1,900-2,000	96	*Pimephales promelas*

Acute toxicity to *Daphnia magna*:
EC_{50} = 1,880-2,337 mg/L, 24 hours;
LC_{50} = 1,900-2,300 mg/L. 96 hours.
Toxicity to algae (in vitro):
EC_{min} = 875 mg/L, 192 hours, Scenedesmus quadricauda (green algae);
EC_{min} = 312 mg/L, 192 hours, Microcytik aeruginosa (blue-green algae);
EC_{50} = 1 mg/L, Chlorella pyrenoidosa
Detected effects on model systems:
EC_{10} = 2,250 mg/L, 16 hours; Pseudomonas putida (bacteria).

For 2-ethylhexanol [10]:

	Value	Exposure Time (h)	Species
Acute toxicity to fish			
LC_{50}, mg/L	32-37	96	*Salmo gairdneri*
LC_{50}, mg/L	17.1	96	*Leuciscus idus melanotus*
LC_{50}, mg/L	27-29.5	96	*Pimephales promelas*

Acute toxicity to *Daphnia magna*:
EC_{50} = 39 mg/L, 48 hours;
Toxicity to algae (in vitro):
EC_{50} = 10-50 mg/L, 48 hours, Chlorella emersonii;
EC_{50} = 11.5 mg/L, 72 hours, Scenedesmus subspicatus.
Detected effects on model ecosystems:
EC_{10} = 540 mg/L, 18 hours; Pseudomonas putida (bacteria);

[1] LHI – Limiting Harmful Index (tox. = toxicological; s-t = sanitary-toxicological; org. = organoleptic, including changes in organoleptic properties of water (odour = the product changes water odour, turb. = increases water turbidity, col. = changes water colour, foam = causes foaming, film = creates film on the surface of water, taste = cause water to change taste, op. = causes opalescence); refl. = reflectory; res. = resorptive; refl.-res. = reflectory-resorptive; fish. = fishery (changes marketability of commercial fish species); gen. = general sanitary).
[2] Water of community-based and household water supply systems
[3] Water of fishery basins (including marine basins)

EC_{50} = 19 mg/L, 24 hours, Artemia salina.

For isobutanol [11]:

	Value	Exposure Time (h)	Species
Acute toxicity to fish			
LC_{50}, mg/L	1,430	96	*Pimephales promelas*
LC_{50}, mg/L	>1,000	96	*Alburnus alburnus*
LC_{50}, mg/L	2,600	24	*Carassus auratus*
LC_{50}, mg/L	1,520-1,750	24	*Leuciscus idus melanotus*
Toxicity to algae			
EC_{50}, mg/L	1,250	48	*Scenedesmus subspicatus*
Acute toxicity to *Daphnia magna*			
EC_{50}, mg/L	1,250	24	
LC_{50}	1,190	48	

Detected effects on model ecosystems:
EC_{50} = 1,124.6 mg/L, 0.25 hours;
Photobacterium phosphoreum.

12.3.3 Environmental migration and transformation due to biodegradation and other processes (oxidation, hydrolysis, etc.)

The product is characterized by high stability in abiotic conditions. Environmentally transformed [1]. Transformation products – aldehydes, acids [10,11].

13 Disposal Considerations

13.1 Safe handling of waste generated from the use, storage or transportation

Waste handling safety measures are similar to those used for product handling.
Handle flammable liquid waste with care; avoid contact of waste with open flame (see Chapters 7 and 8).

13.2 Information about places and methods used for the product waste treatment, disposal or removal, including contaminated packaging

The waste shall be placed, stored and treated at industrial waste landfills and slurry pits in accordance with Sanitary Norms and Regulations SanPiN 2.1.7.1322. Incinerate in suitable incineration plant [1,21,24]. Uncontaminated packaging can be re-used [16].

13.3 Recommendations on the removal of waste generated from the household use of the product

Do not use for household purposes.

14 Transport Information

14.1 UN Number
(according to UN Recommendations on the Transport of Dangerous Goods)

1993 [1,12,22].

14.2 UN proper shipping name

FLAMMABLE LIQUID,
N.O.S. [22]. Alcohol Ether Concentrate [1].

14.3 Types of transport

Land transport (railway and motor transport)

14.4 Transport hazard class under GOST 19433-88

Not classified [1].

14.5 Transport hazard class under UN Recommendations on the Transport of Dangerous Goods:	
- class	CLASS 3 Flammable liquids [12].
- UN packaging group	III [12].
	HAZARD SYMBOL  (No.3) Symbol (flame): black or white; Background: red; digit 3 at the bottom [12].
14.6 Shipping labels (handling marks as per GOST 14192-96)	Handling marks: “Keep Away from Sunlight”, “Sealed Package” as per GOST 14192 [1,23].
14.7 Transport emergency cards (for railway, sea and other types of freight)	No. 328 [1,8,22].
14.8 Additional information	SMGS: Class 3; Classification Code: F1, Hazard Identification No: 30 Hazard Symbol: No. 3 [1,22,32] Classification Index: 3013 [1,22]. ADR/RID: Hazard Class 3, Classification Code: F1 Hazard Identification No: 30 Hazard Symbol: 3 [29].

15 Regulatory Information

15.1 National regulations

15.1.1 Laws of the Russian Federation	Federal Law on Technical Regulation, Federal Law on Environmental Protection, Federal Law on Sanitary and Epidemiological Well-Being of the Population, Russian Labour Code, Federal Law on Production and Consumption Waste, Federal Law on Industrial Safety of Hazardous Production Facilities, Federal Law on Protection of Atmospheric Air.
15.1.2 Health and environmental regulations	Not subject to the Decision of the Committee of the Customs Union No. 299 of 28.05.2010 “On Application of Sanitary measures in the Customs Union” (Revised on 18.11.2014).
15.2 International regulations (Montreal Protocol, Stockholm Convention, etc.)	Not subject to any international conventions or treaties.

16 Other Information

16.1 Indication of SDS changes (revisions)	This SDS was reregistered due to expiry of the

(indicate: SDS developed for the first time or SDS was reissued after its expiry; previous SDS No., etc.)	SDS No. 53505711.24.23439 in accordance with GOST 30333-2007 "Chemical Safety Data Sheet. General Requirements".

16.2 Key literature references and sources

1. TU 2422-012-53505711-2005, Rev. 1-4. Alcohol Ether Concentrate. Specifications
2. Hygienic Standard 2.2.5.1313-03 Maximum Allowable Concentrations (MAC) of hazardous Substances in Occupational Air.
3. Hygienic Standard 2.1.6.1338-03 Maximum Allowable Concentrations (MAC) in the Air of Populated Area.
4. Hygienic Standard 2.1.5.1315-03 Maximum Allowable Concentrations (MAC) in Water of Community-Based and Household Water Supply Systems.
5. GOST 12.1.007-76 Occupational Safety Standards System. Hazardous Substances. Classification and general safety requirements.
6. GOST 12.1.044-89 Occupational Safety Standards System. Fire and Explosion Safety of Substances and Materials. Nomenclature of Indicators and Methods of Identification.
7. A.Ya. Korolchenko, D.A. Korolchenko. Fire and Explosion Safety of Substances and Materials and Extinguishing Methods. Reference Book, M.: Ass. "Pozhnauka", 2004
8. Transport Emergency Cards for Hazardous Goods carried by railroads of CIS, Latvia, Lithuania, and Estonia, approved by the Council of Railway Transport of the CIS Member States. Protocol No. 48 of 30.05.2008 (Rev. 07.05.2014).
9. Information Map of Hazardous Chemical Substance (Russian Register of Hazardous Chemical and Biological Substances). Butane-1-ol. Series BT No. 000122.
10. Information Map of Hazardous Chemical Substance (Russian Register of Hazardous Chemical and Biological Substances). 2-ethylenhexan-1-ol. Series BT No. 000547.
11. Information Map of Hazardous Chemical Substance (Russian Register of Hazardous Chemical and Biological Substances). 2-methyl-propanol-1. Series BT No. 000232.
12. Recommendations on transportation of hazardous goods. UN Standard Regulations (Rev. 18, 2013, vol.1).
13. GOST 12.0.004-90 Occupational Safety Standards System. Labour Safety Training Arrangement.
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