

# CHEMICALS MATERIAL SAFETY DATA SHEET

Entered into the Registry

MSDS Registration No. 53505711-24-40743

Effective date: January 22, 2016

**FEDERAL AGENCY FOR TECHNICAL REGULATION AND METROLOGY**

**Safety of Substances and Materials  
Information and Analytical Center  
FGUP VNII SMT**

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All-Russian Scientific Research Institute of Standardization,  
Information and Certification of Materials and Technologies  
(FGUP VNII SMT), TIN 7707033677  
Information and Analytical Center  
"Safety of Substances and Materials"  
FGUP VNII SMT

**NAME**

Technical (according to ND)  
Chemical (according to IUPAC)  
Trade  
Synonyms

**Petrochemical Stillage Residue KON-92**  
**Absent**  
**Petrochemical Stillage Residue KON-92 (heavy petroleum resin)**  
**Absent**

**OKP Code:** 241544      **Foreign Trade Commodities Nomenclature:** 2713909000

Conditional name and description of products regulatory, technical or informational document (GOST, TU, OST, STO, (M)SDS etc.)

Petrochemical Stillage Residue KON-92 (heavy petroleum resin).  
TU 38.48424318-03-2000 with mod. 1-5

**HAZARD IDENTIFICATION**

**Signal word:** Caution

**Brief description (verbal):** Moderately dangerous substance due to the level of impact on human body in accordance with GOST 12.1.007. Has irritating and narcotic action. May permeate through unbroken skin. Combustible liquid, fire and explosion hazardous substance. Potential environmental pollutant.

**Detailed description:** in 16 sections of the Material Safety Data Sheet as laid down below.

BASIC HAZARDOUS INGREDIENTS	MAC, work area, mg/m <sup>3</sup>	Hazard class	CAS No.	EC No.
2-ethylhexane-1-ol	10	3	104-76-7	203-234-3

**APPLICANT:**

JSC "Sibur-Khimprom",      Perm  
(establishment)      (city)

**Applicant's status:**

manufacturer, supplier, vendor, exporter, importer  
(delete as appropriate)

**OKPO Code:** 53505711

**Emergency telephone** (342) 290-87-05

**Applicant's Head:**

L.S.      (signed)      /K.N. Iugov/  
(signature)      (printed name)

Seal:

Joint-Stock Company "Sibur-Khimprom" \* 1 \*  
OGRN 1025901207804 \* TIN 5905018998 \* KPP 580901001  
Perm, Russia  
"Sibur-Khimprom"

Перевод выполнен  
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Перевод соответствует оригиналу.  
Руководитель: *Билеева*  
Дата: 31.05.2017

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

- IUPAC** is International Union of Pure and Applied Chemistry
- GHS** is UN ST/SG/AC.10/30 recommendations "Globally Harmonized System of Classification and Labeling of Chemicals"
- OKP** is Russian Classifier of Products
- OKPO** is Russian Classifier of Plants and Establishments
- TN VED** is Foreign Trade Goods Nomenclature
- CAS No.** is number of a substance in the Chemical Abstracts Service Registry
- EC No.** is number of a substance in the European Chemical Agency Registry
- MAC w.a.** is maximum allowable concentration of a chemical substance in ambient work area air, mg/m<sup>3</sup>
- Safety Data Sheet** is a certificate for chemicals safety (substances, mixtures, materials, industrial waste)
- Signal word** is a word used to point at chemical product hazard level chosen according to GOST 31340-2013

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## 1 Identification of the Chemical Product and Company/Supplier

### 1.1 Identification of the Chemical Product

- 1.1.1 Product name Petrochemical Stillage Residue KON-92 (heavy petroleum resin).  
[1]
- 1.1.2 Relevant identified uses of the product  
(including application restrictions) Petrochemical Stillage Residue KON-92 is used as a component of fuel for stationary boiler houses, processing units and for other purposes. No restrictions if used properly [1].

### 1.2 Details of the Manufacturer and/or supplier


- 1.2.1 Full official company name JSC "Sibur-Khimprom"
- 1.2.2 Address 98 Promyshlennaya St, Perm, Russian Federation, 614055
- 1.2.3 Telephone number, including for  
emergency advice, and business hours (342) 290-87-05 (24 h) – dispatcher  
(342) 290-89-01 (7:00 – 15.00 Moscow time) – Chief Engineer
- 1.2.4 Fax (342) 290-83-72, (342) 290-86-60
- 1.2.5 E-mail [Mail-Shp@Sibur.Ru](mailto:Mail-Shp@Sibur.Ru)

## 2 Hazards(s) Identification

### 2.1 General hazard level of the chemical product

- (information about hazard class in accordance with the laws of the Russian Federation (GOST 12.1.007-76) and GHS (GOST 32419-2013, GOST 32423-2013, GOST 32424-2013, GOST 32425-2013))
- According to GOST 12.1.007 by effect on organism Petrochemical Stillage Residue KON-92 falls into hazardous class 3, i.e. refers to moderately dangerous substances [1, 5].  
According to GOST 32419 (GHS) classified as chemical product [33] that:
- is a combustible liquid, class 4;
  - causes skin irritation, class 2;
  - significantly irritates eye mucosa, class 2A;
  - has irritating and narcotic action, class 3;

### 2.2 Details of hazardous labels as per GOST 31340-2013

- 2.2.1 Signal word Warning
- 2.2.2 Danger symbols 
- 2.2.3 Hazard statement (H-phrases) H227: Combustible liquid  
H315: Causes skin irritation  
H320: Causes eye irritation  
H335: May cause respiratory irritation  
H336: May cause drowsiness or dizziness

[17]

## 3 Composition (Information on Ingredients)

### 3.1 General Information about the Product

- 3.1.1 Chemical name No. [1].  
(as per IUPAC)
- 3.1.2 Chemical formula No. [1].
- 3.1.3 General description of the composition  
(with account of the brand assortment;  
production process) Petrochemical Stillage Residue KON-92 produced from residuals of butyl alcohols, butyl aldehydes, 2-ethylhexanol, 2-ethylhexanoic acid, ethylene-propylene copolymer and ethyl benzene [1].

### 3.2 Ingredients

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(name, CAS No. and EC No., weight content (total should equal 100%), MAC w.a. or self-reference level of impact (SRLI) w.a., hazard classes, references to data sources)

Table 1 [1,2,5,9,27]

Ingredients (name)	Weight content, %	Hygienic regulations In the work area air		CAS No.	EC No.
		MAC w.a., mg/m <sup>3</sup>	Hazard class		
Petrochemical Stillage Residues, including 2-ethylhexanol <sup>+</sup> , %, NMT	100	none	none	none	none
	10	10 (a)	3	104-76-7	203-234-3

<sup>+</sup>-compounds which require skin and eye special protection while handling; a - aerosol

## 4 First Aid Measures

### 4.1 Symptoms

- 4.1.1 Inhalation poisoning (if inhaled): Excitement followed by retardation, difficulty in breathing, reduced response to external stimuli, dystaxia [1,9].
- 4.1.2 Skin contact: Reddening [10].
- 4.1.3 Eye contact: Reddening, pain [10].
- 4.1.4 Poisoning by ingestion (if swallowed): Poisoning by ingestion is possible. [1].

### 4.2 First-Aid Measures for the Injured

- 4.2.1 Inhalation: Fresh air, warm and quiet environment. In case of upper respiratory passages irritation gargle with baking soda 2% water solution, soda inhalations, warm milk with soda or Borjomi. Get medical attention. [1,9].
- 4.2.2 Skin contact: Rinse with running water. If necessary, get medical attention [1,9].
- 4.2.3 Eye contact: Wash with running water, keeping the eyelids open. If necessary, get medical attention [1,9].
- 4.2.4 Poisoning by ingestion: Increased fluid intake, activated carbon, saline purge. If necessary, get medical attention [1,9].
- 4.2.5 Counterindications: Data is not available [1].

## 5 Fire-Fighting Measures

- 5.1 General description of fire/explosion hazard.  
(as per GOST 12.1.044-89)  
According to GOST 12.1.044 Petrochemical Stillage Residue KON-92 refers to combustible liquids. Ignites if exposed to open flame.  
Vapours may form explosive mixtures with air when the substance is heated above 61°C. Burns with emission of toxic gases and dense smoke. Containers with the product may explode when heated [1,6]. In case of fire, burns and toxic gases poisoning is possible. [8].
- 5.2 Specific hazards  
(list of hazards as per GOST 12.1.044-89 and GOST 30852.0-2002)  
Closed-cup flash point – more than 61°C;  
Auto-ignition temperature – about 450°C;  
Explosion hazard of the product vapours mixture with air: category IIA according to GOST 30852.11, group T2 according to GOST 30852.5 [1].

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5.3 Combustion and/or thermal destruction products and associated hazards

Combustion releases toxic substances, namely, carbon oxides [9]. Mild poisoning: without faintness or with short-term faintness, drowsiness, nausea, sometimes vomiting; Moderate severity: faintness followed by general weakness, blocking, movement abnormalities, convulsions; Severe: long-term faintness, clonic or tonic convulsions, involuntary urination and defecation (carbon monoxide) [30].

5.4 Recommended extinguishing media

Powder or carbon dioxide fire extinguishers. Water spray with a wetting agent, air and mechanical foam, powders and other extinguishing media [1,8].

5.5 Prohibited extinguishing media

Compact water jets [7].

5.6 Protective measures in fire (Fire-fighter's PPE)

In case of fire: fire-fighting suit is to be used with SPI-20 self-rescue breathing apparatus [8].

5.7 Special fire-fighting procedure

No [8].

## 6 Accidental Release Measures

### 6.1 Precautions against Harmful Effects on People, Environment, Buildings, Structures etc. in Case of Emergencies

6.1.1 General emergency response measures

Provide containment of the dangerous area of at least 50 m. Wear protective clothing and breathing apparatus when entering the area. Keep unauthorized people away from the area. Observe fire-safety measures. Do not smoke. Provide first aid to the injured [8].

6.1.2 Personal protective equipment for emergencies (PPE of emergency response teams)

For emergency service team: use KIH-5 self-contained protective suit coming with IP-4M self-contained breathing apparatus or ASV-2 breathing apparatus [8].

For personal protective equipment for personnel see cl. 8.3.

### 6.2 Emergency Response Procedure

6.2.1 Spill clean-up (including response and precautions measures that ensure protection of the environment)

Eliminate the leakage in compliance with the safety precautions. Pump the contents into the proper tank or drain tank in compliance with the requirements for liquids mixture. In case of intensive leakage dike with soil. Prevent substance entry into water bodies and sewerage. Pump out the substance from the lower area while observing fire safety measures. Absorb leakage area with sand, wash with plenty of water, dike and prevent substance entry into surface waters. Remove the topsoil with contaminations, collect and take away for disposal in compliance with the safety precautions. Cover the cut-off areas with fresh earth. Call a specialist to neutralize the spill [8].

6.2.2 Fire response procedure

Extinguish fire and cool down containers with water keeping as far as possible [8].

## 7 Handling and Storage

### 7.1 Safety Precautions for Handling Chemical Products

7.1.1 Usage Precautions

Production of Petrochemical Stillage Residue KON-92 shall meet requirements of "General codes on explosion protection for explosive and fire hazardous chemical, petrochemical plants and oil refineries" [31]. The following safety signs in accordance with GOST R 12.4.026 shall be used: P02 "Never use open flame and no smoking". In

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production environment airtight packing of production equipment and suction-and-exhaust ventilation shall be provided. Do not use open flame and sources of sparks. Electrical equipment and lighting fixtures are to be explosion-proof and pipelines are to be grounded. During loading and unloading operations it is necessary to comply with the rules of protection against static electricity in accordance with the requirements of GOST 12.1.018 [1, 11].

#### 7.1.2 Environmental Precautions

Protection of the environment from the harmful effects of KON-92 during production, transportation and storage of the product is provided by sealing of production equipment and containers. The product shall not be discharged into surface water-bearing strata of drinking, household, cultural and social water consumption. It shall also not be discharged into air and soil [1].

#### 7.1.3 Transportation Precautions

Petrochemical Stillage Residue KON-92 shall be shipped by rail and road transport in accordance with the regulations concerning the carriage of dangerous goods applicable for this means of transport.

By rail Petrochemical Stillage Residue KON-92 is transported in bulk in tank-wagons of the consignor (consignee) or in leased tank-wagons (type of consignment – carload).

The filling extent of tank-wagons is set in accordance with the “Regulations concerning the carriage of liquid goods in bulk in tank-wagons and hopper wagons for transportation of petroleum bitumen” and should not exceed capacity of the tank. The maximum degree of filling is 95 % (by volume).

The temperature of the product during the filling process shall be 50°C max. By road Petrochemical Stillage Residue KON-92 is transported in bulk in road-tankers or packaged. It is allowed to transport the product in bags and in bulk. When the cargo is packaged, it shall be placed in bags in accordance with GOST 26663, GOST 21140. Parameters and dimensions of the bags shall comply with GOST 24597. The bag fasteners shall be chosen in accordance with GOST 21650, GOST 25951 [1,25,28,29].

### 7.2 Storage Precautions

7.2.1 Safe storage term and conditions  
 (including guaranteed shelf-life, shelf-life;  
 incompatible substances and materials)

Petrochemical Stillage Residue KON-92 shall be stored in warehouses of the consignor (consignee) in airtight containers or tanks in closed warehouses, under shelter or at storage sites in compliance with the rules for storage of combustible products. The storage temperature shall be not more than +50°C. The manufacturer guarantees compliance of Petrochemical Stillage Residue KON-92 with specifications within 12 months from the date of manufacture if it is properly transported and stored. [1].

Avoid contact with oxidizers, acids, alkalis, combustible substances and flammable liquids [9,20].

7.2.2 Packaging and tanks  
 (including materials they are manufactured  
 from)

Petrochemical Stillage Residue KON-92 shall be packaged in steel barrels in accordance with GOST 6247 (type 1), GOST 13950 (type 1A1) with a capacity of 100 dm<sup>3</sup>, 200 dm<sup>3</sup> [1].

7.3 Household precautions

Not used in household.

## 8 Exposure Controls/ Personal Protection

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8.1 Exposure limits  
(MAC w.a. or SRLI w.a.)

MAC w.a. (for 2-ethylehexane-1-ol<sup>+</sup>) = 10 mg/m<sup>3</sup>, aerosol, hazard class 3 [1,2,9].

8.2 Measures aimed at observance of the exposure limits

Airtight equipment and tanks for storage and transportation, supply and exhaust ventilation and local exhaust units, monitoring of content of harmful substances in the air of work area. [1,9,14].

### 8.3 Employees PPE

8.3.1 General Guidelines

Avoid direct contact with product, use PPE (personal protective equipment). Observe personal hygiene measures. Pregnant women and people under 18 years old are not allowed to work with this product. Personnel involved shall pass preliminary (when applying for a job) and periodic medical examinations [13,15,18,19].

8.3.2 Respiratory equipment (PPE types)

Industrial filtering gas masks with model A or BKF box in accordance with GOST 12.2.122, and gas masks with model A filters, class 3, in accordance with GOST 12.4.235 or compound filter DOT [1,10,19].

8.3.3 Protective equipment (materials, type)  
(protective clothing, protective footwear, hand protection, eye protection)

Safety goggles of PO-2 type in accordance with GOST 12.4.253 [9,19]. Oil and petrol resistant gloves, butyl-rubber dispersion gloves, special footwear, cotton suit, leather shoes, helmet, helmet liner [19].

8.3.4 PPE for household use

Not used in household.

## 9 Physical and Chemical Products

9.1 Physical Form  
(aggregate state, colour, odour)

A homogenous low-volatile fluid of light brown to dark brown color with sharp odor, containing high-boiling component [1].

9.2 Major properties of the product  
(temperature indicators, pH, solubility, n-octanol/water factor etc., parameters typical of this type of product)

Density at 20 °C	0.8 – 0.95 g/cm <sup>3</sup> [1]
Setting point	not higher than minus 30 °C [1]
Boiling temperature	120 - 290 °C [1]
Solubility	Oil is soluble in water, insoluble in acids and alkalis [1].

## 10 Stability and Reactivity

10.1 Chemical stability  
(Specify decomposition products for unstable products)

The product is stable under normal conditions [1].

10.2 Reactivity

Does not react with water. Vapours are heavier than air. The product does not smoke on air. Does not enter into oxidation-reduction reactions, does not possess corrosive activity [1]. At high temperature in the presence of oxygen the product burns forming carbon oxides [9].

10.3 Conditions to avoid  
(Including hazardous manifestations upon contact with incompatible substances and materials)

Heating. Operations with open flame.  
[1,8,9].

## 11 Toxicological Information

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11.1 General impact  
(evaluation of hazard (toxicity) on the body  
and the most typical manifestations of hazard)

As to the level of impact on the human body Petrochemical Stillage Residue KON-92 is a moderately dangerous substances in accordance with GOST 12.1.007 (hazard class 3) [1].

11.2 Routes of entry  
(inhalation, ingestion, skin contact, eye  
contact)

Inhalation, ingestion, skin and eye contact [1].

11.3 Target human organs, tissues and systems

Central nervous system, lungs, liver, kidneys, gastrointestinal tract, upper respiratory passages, eyes, skin [1].  
Irritates skin, eye mucosa, upper respiratory passages.

11.4 Information about hazardous impact in  
case of immediate contact with product, and  
consequences of impact  
(Upper respiratory track irritation, eyes, skin;  
skin-resorptive and sensitizing action)

Has skin-resorptive, narcotic action, weak cumulative effects.  
Sensitizing action has not been established [1,9].

11.5 Information about long-term effect of the  
product on the body  
(influence on the reproductive function,  
carcinogenicity, mutagenicity, cumulateness  
and other chronic effects)

Has mutagenic, embryotropic, teratogenic and weak cumulative effect [1,9].  
Gonadotropic and carcinogenic effects have not been studied [9].

11.6 Acute toxicity indicators  
(DL<sub>50</sub>, route of entry (oral, dermal), animal;  
CL<sub>50</sub>, exposure time (h), animal)

(For 2-ethylhexanol):  
DL<sub>50</sub> = 1,860 mg/kg, Guinea pigs, intragastric  
DL<sub>50</sub> = 2,500 mg/kg, mice, intragastric  
DL<sub>50</sub> = 1,970 mg/kg, rabbits, dermal  
CL<sub>0</sub> = 270-370 mg/m<sup>3</sup>, mice, exposure: 2 h [9].

## 12 Ecological Information

12.1 General ecotoxicity  
(atmospheric air, water bodies, soil, including  
observed symptoms of impact)

When released into the air basins, water bodies and soils Petrochemical Stillage Residue KON-92 may have toxic effect on biological objects living in the air, aquatic environment and soil [1].

12.2 Environmental exposure pathway

Adverse environmental effect of the product may be caused by emergencies, when there is the possibility of its getting into the air and water basins or soil.

### 12.3 Ecological Information

#### 12.3.1 Hygienic Regulations

(Allowable concentration in the atmospheric air, water, including in fishery water bodies, soils)

Table 2

Ingredients	MAC atm. air, mg/m <sup>3</sup> (LNV <sup>1</sup> , hazard class) [3,9]	MAC water <sup>2</sup> , mg/l, (LNV, hazard class) [3,9]	MAC com. fish. <sup>3</sup> , mg/l (LNV, hazard class) [9,26]	MAC soil or APC soil, mg/kg (LNV)
2-Ethylhexan-1-ol	0.15	0.1 5	0.09	Not established

<sup>1</sup> LNV – Limiting Nuisance Value (tox. – toxicological; s.-t. san.-tox.) – sanitary-toxicological; org. – organoleptic with interpretation of changes in the organoleptic properties of water (odour – has water odour, turb. – increases water turbidity, coul. – adds colour to the water, foam – causes foaming, film – forms film on the water surface, flav. – adds flavor to water, op. – causes opalescence); refl. – reflectory; res. – resorptive; refl.-res. – reflectory -resorptive; com. fish. – commercial fishing (changes in the commodity properties of fishing aquatic organisms); gen. – general sanitary).

<sup>2</sup> Water of water bodies of drinking, household, cultural and social water consumption

<sup>3</sup> Water of commercial fishing water bodies (including sea)

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refl., hazard class 4	gen., hazard class 3	tox., hazard class 4
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12.3.2 Exotoxicity  
(CL, EC, NOEC for fish, Daphnia, algae etc.)

(For 2-Ethylhexanol):

	Value	Exposure time (h)	Animal
Acute toxicity for fish			
CL <sub>50</sub> mg/kg	32-37	96	Salmo gairdneri
CL <sub>50</sub> mg/kg	17.1	96	Leuciscus idus melanotus
CL <sub>50</sub> mg/kg	27-29.5	96	Pimephales promelas

Acute toxicity for daphnia Magna:

EC<sub>50</sub> = 39 mg/l, 48 h;

Toxic effect on algae (in culture):

EC<sub>50</sub> = 10-50 mg/l, 48 h, Chlorella emersonii;

EC<sub>50</sub> = 11.5 mg/l, 72 h, Scenedesmus subspicatus.

Detected effect on model ecosystems:

EC<sub>10</sub> = 540 mg/l, 18 h, Pseudomonas putida (Bacteria);

EC<sub>50</sub> = 19 mg/l, 24 h, Artemia salina

[9].

Transforms in the environment. Transformation products are not established. Highly stable in abiotic conditions [9].

12.3.3 Migration and transformation in the environment due to biodegradability and other processes (oxidation, hydrolysis, etc.)

### 13 Disposal Considerations

13.1 Safety precautions for handling waste generated during use, storage, transportation

**Safety measures when handling wastes are similar to those used when handling the Product.**

Observe precautions for handling combustible substances, avoid contact of wastes with open flame (sections 7,8).

13.2 Places and methods of decontamination, disposal, or manage product waste, including packaging

Industrial waste emplacement, storage and disposal shall be made on industrial waste landfills and on sludge depositories in accordance with SanPiN 2.1.7.1322. Waste disposal shall be made by incineration [9, 21, 24]. It is admissible to re-use the package after elimination of remaining residue [16].

13.3 Recommendations on disposal of waste from household use

Is not used in household.

### 14 Transport Information

14.1 UN number  
(subject to UN Guidelines on transport of dangerous goods)

3082 [1,12,22].

14.2 Proper shipping name

LIQUID SUBSTANCE, HAZARDOUS FOR ENVIRONMENT,  
N.O.S. (Heavy petroleum resins)

[1,12,22].

14.3 Applicable means of transport

Petrochemical Stillage Residue KON-92 (heavy petroleum resin) [1].

Rail and road transport [1].

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14.4 Cargo hazard class subject to GOST 19433-88:

Not classified [1].

14.5 Cargo hazard class subject to UN Recommendations on shipping hazardous cargo:

- Class

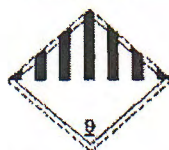
CLASS 9

Miscellaneous dangerous substances and articles [1,12].

- UN packaging group

III [1,12].

HAZARD SYMBOL



(No.9)

Symbol (seven vertical stripes in upper half): black;

Background: white;

Figure '9' underlined in bottom corner [12].

14.6 Transport Labels (handling symbols as per GOST 14192-96)

Handling symbols "Keep away from direct sunlight", "Tight containers" according to GOST 14192 [1, 23].

14.7 Emergency cards (if shipping by railway, sea etc.)

No. 906 [1,8,22].

14.8 Addition hazard information

Agreement on International Goods Transport by Rail: class 9, classification code M6, hazard identification number (hazard code) 90, hazard symbol No. 9 [1,22,32].

ADR/RID: hazard class 9, classification code M6, hazard identification number (hazard code) 90, hazard symbol 9 [29].

## 15. Regulatory Information

### 15.1. National Regulations

#### 15.1.1. Russian Federation laws

Law "On Technical Regulation", Law "On Protection of Environment", Law "On Sanitary and Epidemiological Welfare of the Population", "Labour Code of the Russian Federation", Law "On Production and Consumption Wastes", Law "On Industrial Safety of Hazardous Production Facilities", Law "On Protection of Atmospheric Air".

#### 15.1.2. Regulations on protection of humans and environment

Is not subject to Customs Union Commission Decision No. 299 "On Sanitary Measures of the Customs Union" dated May 28, 2010 (edition dated November 18, 2014).

#### 15.2 International Conventions and Agreements

(whether or not the product is regulated by the Montreal Protocol, Stockholm Convention etc.)

Does not fall under the international conventions and agreements.

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## 16. Other Information

16.1. Information on revision (reprinting) of SDS

(indicate: New SDS or SDS has been reregistered upon expiration of the term. Previous SDS No. Or Changes have been made in the clause...., date of changes...)

MSDS has been revised due to the expiration of period of validity of MSDS Reg. No. 53505711.24.24762 according to GOST 30333-2007 "Chemicals Safety Data Sheet. General Requirements".

### 16.2. List of Information Sources used to Make this Safety Data Sheet<sup>4</sup>

- 1 TU 38.48424318-03-2000 with mod 1-5 "Petrochemical Stillage Residue KON-92 (heavy petroleum resin)".
- 2 GN 2.2.5.1313-03 "Maximum allowable concentrations (MAC) of harmful substances in the air of work area"
- 3 GN 2.1.6.1338-03 "Maximum allowable concentrations (MAC) of pollutants in the air of work area".
- 4 GN 2.1.5.1315-03 "Maximum allowable concentrations (MAC) of chemicals in the water of water objects used for drinking and domestic-recreation purposes".
- 5 GOST 12.1.007-76 Occupational safety standards system. Harmful Substances. Classification and general safety requirements.
- 6 GOST 12.1.044-89 Occupational safety standards system. Fire and explosion hazard of substances and materials. Nomenclature of indicators and measurement procedures.
- 7 A.Ya. Korolchenko. Fire and Explosion Hazard of Substances and Materials and Methods of Extinguishing, Handbook, Moscow, "Pozhnauka" Association, 2004.
- 8 Transport emergency cards for dangerous goods carried by railroads in CIS, Latvian Republic, Lithuanian Republic, Estonian Republic approved by the Council for Railway Transport of CIS participant-states, Protocol dated 30.05.2008 No. 48. (revision dated November 05, 2015)
- 9 Data sheet for potentially hazardous chemical (PHC): 2-ethylhexane-1-ol. Series BT No. 000547.
- 10 International Chemical Safety Cards (ICSC: 0890) <http://www.safework.ru/cards/>
- 11 GOST 12.1.018-93 Occupational safety standards system. Fire and explosion hazard of static electricity. General requirements.
- 12 Recommendations of carriage of dangerous goods. Standard rules, UNO, (edition 18, 2013, vol. 1)
- 13 GOST 12.0.004-90 Occupational safety standards system. Occupational safety training planning.
- 14 R 2.2.2006-05 Guide to hygienic assessment of work environment and working process. Criteria and classification of working conditions.
- 15 Order No. 302n of the Ministry of Health Care and Social Development of the Russian Federation dated 12 April 2011 "On approval of nomenclatures of harmful and (or) hazardous industrial factors and work activities which require preliminary and regular medical examination (investigations) and Procedure of preliminary and regular medical examination (investigations) of employees engaged in heavy work and in work with harmful and (or) hazardous working conditions".
- 16 GOST 1510-84 Oil and petroleum products. Labeling, packaging, transportation and storage.
- 17 GOST 31340-2013 Chemical products warning marking. General requirements.
- 18 N.V. Lazarev. Harmful substances in industry. Vol. 1, Leningrad, Chemistry. 1976.
- 19 Order No. 906n of the Ministry of Healthcare and Social Development of the Russian Federation dated August 11, 2011 "On approval of standard guidelines for free issue of safety clothing, safety footwear and other personal protective equipment to the employees of chemical plants engaged in works with harmful and (or) hazardous working conditions and in work with special temperature conditions, or work connected with contamination".
- 20 GOST 12.1.004-91 Occupational safety standards system. Fire safety. General requirements.

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Petrochemical Stillage Residue KON-92 (heavy petroleum resin). TU 38.48424318-03-2000 with mod. 1-5	MSDS Reg. No. 53505711.24.40743 Expiry Date: January 22, 2021	Page 12 of 12
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- 21 GOST R 53692-2009 Resources saving. Waste treatment. Stages of technological cycle of waste.
- 22 Alphabetic index of dangerous goods approved for railway transportation. Appendix No. 2 to Rules for Carriage of Dangerous Goods by Rail.
- 23 GOST 14192-96 Labeling of Goods.
- 24 SanPiN 2.1.7.1322-03 "Hygienic requirements for waste disposal and decontamination"
- 25 Regulations concerning the carriage of liquid goods in bulk in tank-wagons and hopper wagons for transportation of petroleum bitumen. approved by Council for Rail Transport of state-members of the Commonwealth, Minutes No. 50 dated May 21-22, 2009.
- 26 Order of the Russian Fishery Agency No. 20 "On approval of water quality standards in water bodies intended for fishery including maximum allowable concentrations of harmful substances in water of water bodies intended for fishery" dated January 18, 2010.
- 27 A.K. Chernishev, B.A. Lubis, V.K. Gusev, B.A. Kurlyandski, B.F. Egorov. Hazard indicators of substances and materials, M., 2002, vol. 2, No. 14319. 2-ETHYL-1 HEXANOL.
- 28 Regulation of transport of goods by road (as amended by Government Decree of the Russian Federation No. 1208 dated December 30, 2011)
- 29 European agreement on international carriage of dangerous goods (RID), UNO, New York and Geneva, 2010.
- 30 Information card of potentially hazardous chemical substance (PHCS): carbon (II) oxide. Registration No. AT 000672.
- 31 Federal rules and regulations (FRR) for industrial safety "General codes on explosion protection for explosive and fire hazardous chemical, petrochemical plants and oil refineries", order No. 96 of the Federal Service of Environmental, Technological and Nuclear Supervision dated March 11, 2013 (registered by the Ministry of Justice of Russia dated April 16, 2013, Reg. No. 28138).
- 32 Regulations on the Transport of Dangerous Goods (Appendix 2) to the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).
- 33 GOST 32419-2013 Classification of Chemicals. General Requirements

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