

CHEMICAL PRODUCTION SAFETY DATA SHEET

(Safety Data Sheet)

Registered as

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on May 16, 2017

Valid till

May 16, 2020

Association "Non-profit partnership
"Coordination and information center of CIS countries
on regular practices rapprochement"

Deputy director /signature/ /N.M. Muratova/
Place of stamp.

NAME:

technical (under TC)

N-methylaniline technical approved

chemical (under IUPAC)

N-methylaniline

trade

N-methylaniline technical approved

synonyms

*N-monomethylaniline, N-methylphenylamine, N-phenylmethylamine,
N-methylbenzylamine, (Methylamino) benzene.*

Code OKPD 2:

2 | 0 . | 1 | 4 . | 4 | 1 . | 1 | 4 | 0

Code TN VED:

2 | 9 | 2 | 1 | 4 | 2 | 0 | 0 | 0 | 0

Reference designation and name of main normative, technical or information document for product
(GOST, TC, OST, STO, (M)SDS)

STO 00204168-001-2008 N-methylaniline technical approved. Technical conditions

HAZARD DESIGNATION:

Signal word: **DANGER**

In brief (verbal): Highly dangerous substance on effect for human organism according to GOST 12.1.007. Harmful if ingested. Toxic if on skin and inhaled. Causes apparent irritation of eyes mucosa. May influence negatively on reproductive ability or unborn child. Long-term or repeated exposure may cause organs injury. Inflammable liquid. Toxic for aquatic medium with long-term effects.

In details: in 16 sections attached to Safety Data Sheet.

MAIN HAZARDOUS COMPONENTS	EAC of working zone, mg/m ³	Hazard class	CAS No.	EC No.
N-methylaniline	0,2 (vapors)	2	100-61-8	202-870-9

APPLICANT: JSC "Volzhsky Orgsynthese",
(organization name)

Volzhsky
(city)

Applicant type: manufacturer, supplier, seller, exporter, importer
(useless to be stricken out)

Code OKPO: 0 0 2 0 4 1 6 8

Emergency phone number: +7 (8443) 52-51-29

General director: /signature/

V.V. Yurov

Stamp

**Safety Data Sheet (SDS) is conformed to UN recommendations ST/SG/AC.10/30
«GHS»**

IUPAC	– International Union of Pure and Applied Chemistry
GHS (SGS)	– Recommendations of OOH ST/SG/AC.10/30 «Globally Harmonized System of Classification and Labelling of Chemicals (SGS)»
OKPD 2	– All-Russian classification of production
OKPO	– All-Russian classification of enterprises and organizations
TN VED	– Trade nomenclature of foreign economic activities
№ CAS	– substance number in Register of Chemical Abstracts Service
№ EC	– substance number in Register of the European Chemicals Agency
EAC w.z.	– extreme admissible concentration (EAC) of chemical substance in the air of working zone, mg/m ³
Signal word	– word using to pay attention to hazard degree of chemical production according to GOST 31340-2013

1 Chemical production identification and information about manufacturer and/or supplier

1.1 Chemical production identification

1.1.1 Technical name	N - methylaniline technical approved
1.1.2 Brief recommendations for application (including limitations for application)	Antiknock additive used for unleaded gasoline production, including ecologically clean gasoline, to raise its antiknock rating and to improve its operational properties.

1.2 Information about manufacturer and/or supplier

1.2.1 Full legal name of organization	Joint Stock Company "Volzhsky Orgsynthese" (JSC "Volzhsky Orgsynthese")
1.2.2 Address (mailing and legal)	100, Alexandrova str., Volzhsky, Volgograd region, 404117, Russia
1.2.3 Phone number including for emergency situations	+7 (8443) 52-51-29; 21-59-03 (round-the-clock)
1.2.4 Fax	+7 (8443) 22-56-47, 52-51-27
1.2.5 E-mail	mail@zos-v.ru

2 Hazard (hazards) identification

2.1 Hazard degree of chemical production in general (information about hazard classification according to the legislation of RF (GOST 12.1.007-76) and SGS (GOST 32419-2013, GOST 32423-2013, GOST 32424-2013, GOST 32425-2013))	Highly dangerous substance on effect for human organism according to GOST 12.1.007, hazard class 2. Substance hazard classification according to SGS: - production being inflammable liquid, class 4; - production having acute toxicity on effect for an organism if ingested, class 4; - production having acute toxicity on effect for an organism if on skin, class 3; - production having acute toxicity on effect for an organism if inhaled, class 3; - production causing eyes mucosa irritation, class 2A; - production affecting reproductive ability, class 1B; - production having selective toxicity on target-organs and/or systems at single and repeated/long-term exposure, class 2; - production having acute toxicity for aqueous medium, class 3; - production having chronic toxicity for aqueous medium, class 3.
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2.2 Labeling information according to GOST31340-2013

2.2.1 Signal word

DANGER

2.2.2 Hazard symbols (signs)



«Skull and crossbones»



«Danger for human health»

2.2.3 Brief hazard characteristic (H-phrases)

H227: Inflammable liquid.
H302: Harmful if ingested.
H311: Toxic if on skin.
H331: Toxic if inhaled.
H319: Causes apparent irritation if in eyes.
H360: May influence negatively on reproductive ability or unborn child.
H371: May affect organs at singly exposure if inhaled, contacted with skin or ingested.
H373: May affect organs at repeated or long-term exposure if inhaled, contacted with skin or ingested.
H412: Harmful for aquatic medium with long-term effects.

3 Composition (information about components)

3.1 Information about production in general

- 3.1.1 Chemical name (under IUPAC) N-methylaniline
- 3.1.2 Chemical formula Molecular formula: C_7H_9N
 $C_6H_5NHCH_3$
- 3.1.3 General composition characteristic (grade composition, production method) N-methylaniline is manufactured using catalytic alkylation of aniline by methanol.

3.2 Components

(designation, CAS No. and EC No., content (100% in sum), EAC w.z., SRLI w.z., hazard classes, references to data sources)

Table 1

Components (designation)	Content, %	Hygienic standards in air of working zone		№ CAS	№ EC
		EAC w.z., mg/m ³	Hazard class		
N-methylaniline +	≥ 98,0	0,2 (v)	2	100-61-8	202-870-9
Aniline +	≤ 0,3	0,3/0,1 (v)	2	62-53-3	200-539-3
N,N – dimethylaniline +	≤ 1,6	0,2 (v)	2	121-69-7	204-493-5

Note:
«v» - vapors;
«+» - substances, for work with which special skin and eyes protection is required.

4 First aid measures

4.1 Poisoning symptoms

- 4.1.1 Poisoning if inhaled *Acute poisoning.* Weakness, giddiness, headache, reduction of movements coordination, nausea, vomiting, short breath, tachycardia, chest pain, cyanosis of mucous membranes, fingers, auricles. In severe cases – excitation, loss of consciousness.
Poisoning symptoms may not occur immediately, so it's necessary to seek a medical control.
- 4.1.2 Poisoning if on skin Absorption through a skin causing acute poisoning symptoms. Low irritant for cutaneous coverings.
- 4.1.3 Poisoning if in eyes Lacrimation, edema of eyelids, low irritation of mucous membranes, grips, pain.
- 4.1.4 Poisoning if ingested Pain in stomach, symptoms of acute poisoning.

4.2 First aid measures for victims

- 4.2.1 Poisoning if inhaled Fresh air, rest, warm.
To seek a medical advice in case of health deterioration.
- 4.2.2 Poisoning if on skin To remove contaminated clothes and shoes. To wash skin abundantly by warm water with soap, to wash body completely.
To seek a medical advice in case of health deterioration.
- 4.2.3 Poisoning if in eyes To rinse abundantly with running water with widely open palpebral fissures for 15 min, not less. If there are lenses, to remove them if it's easier to do.
To seek a medical advice.
- 4.2.4 Poisoning if ingested To rinse a mouth, to give activated carbon (2 tablespoons per a glass of water), to rinse a stomach or to give salt laxative (1 tablespoon of English or Glauber's salts).
To seek an immediate medical advice.
- 4.2.5 Contradictions *Alcohol is absolutely restricted!*
Castor oil, fat and milk are restricted. To avoid application of chloral hydrate, barbital sodium, sodium amital in soporific doses!

5 Fire-fighting measures and means

5.1 General fire and explosion characteristic (according to GOST 12.1.044-89)	Inflammable liquid.
5.2 Fire and explosion indices (indices range under GOST 12.1.044-89 and GOST 30852.0-2002)	Flash temperature: 77°C. Self-ignition temperature: 482°C. Concentration flame spread limits: from 1,2 up to 8,3% (by volume).
5.3 Dangerous burning and/or thermal destruction products and their hazard	At thermal destruction, toxic gases - nitrogen and carbon oxides are formed and cause giddiness and apnoea.
5.4 Suitable extinguishing means	For small ignitions – foam and powder fire extinguishers, sand. For total flooding – gaseous devices, sprayed water. For big fires - air-mechanical foam.
5.5 Prohibited extinguishing means	Water-alkaline solutions, compact water jets, water with moistening.
5.6 Personal protection fire means (individual protection means)	Heat-reflecting suit TOK-200, general service uniform BOP-1, air respiratory device.
5.7 Extinguishing particularity	At temperature above 80 °C, vapors may form explosive mixtures with air and from residues in empty reservoirs. Vapors are heavier than air and may drift over the soil so the ignition may occur far from spillage place.

6 Accident prevention measures

6.1 Measures on prevention of harmful effect on people, environment, buildings, constructions etc. in case of emergency situations

6.1.1 General measures in case of emergency situations	To take away transport means to a safe place. To isolate a dangerous zone in radius of 200 m, not less. To adjust the indicated distance based on results of chemical reconnaissance. To move off outsiders. To enter dangerous zone in protective clothes. To adhere a weather side. To avoid lower places. To keep fire safety requirements. To eliminate flame and sparks sources. Not to smoke. To render the first aid to victims.
6.1.2 Individual protection means for emergency situations (means for emergency teams)	Heat-reflecting suit TOK-200, general service uniform BOP-1, chemical protection suit of the 1 st class, air respiratory device.

6.2 Measures on emergency situations liquidation

6.2.1 Measures in case of leakage, spillage, scattering (including actions for their liquidation and preventive measures ensuring environment protection)	To notify local sanitary inspection authorities. To stop road traffic. Not to contact spilled substances. To eliminate leakages keeping safety requirements. To re-pump the content to a vessel in good repair. To isolate spillage places by mounds, to cover with sand. To collect and to send contaminated sand for disposal. To wash transport means and coverings abundantly with water. To avoid substance penetration to water reservoirs, underground, sewer system. To send wash waters to treatment facilities.
6.2.2 Measures in case of fire	Not to approach to burning product. To cool vessels by water from maximum distances. To extinguish from maximum distance by water mist, air-mechanical and chemical foams.

7 Storage requirements of chemical production and handling with it

7.1 Safety measures at handling

7.1.1 Systems of engineering safety measures	To apply exchange blowing-exhausting ventilation systems in production areas. To apply sealed equipment and vessels for storage and transportation. To keep fire safety measures. To apply explosive-proof equipment, facilities and lighting. To protect against static
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7.1.2 Measures for environment protection	electricity, to use spark-proof tools for repair. To equip working places with initial fire extinguishing means. To use personal protection means.
7.1.3 Recommendations on safety displacements and transportation	Vessels, facilities and other equipment must be maximum sealed; to control periodically harmful substances in air of working zones; to analyze industrial wastes for content of harmful substances in admissible concentrations. Product is transported by railway and by road in sealed covered tanks according to Regulations of hazardous cargo transportation prescribed for each transport mean.
7.2 Storage requirements of chemical production	
7.2.1 Safety storage terms and conditions (including warranty storage period, shelf life, incompatible substances and materials at storage)	To store under nitrogen in sealed steel vessels outdoors or in cool covered places equipped by combined extract and input ventilation. Product storage temperature must not exceed 40 °C. Color change from yellowish to light brown is possible under oxygen influence in case of storage without nitrogen. It's recommended to use vessels as stationary steel tanks for oil and petroleum products in case of outdoor storage. Filling level of vessels – 94% of capacity, not more. Warranty storage and shelf life period – 6 months since the production date. Storage with strong oxidants, strong acids, alkalis, foodstuffs, animal feedstuffs is prohibited.
7.2.2 Tare and packing (including materials of their production)	Steel or aluminum vessels.
7.3 Life application	Not applied.

8 Control means of hazardous exposure and personnel protection means

8.1 Working zone parameters to be obligatory controlled (EAC w.z., SRLI w.z.)	To control vapors content under production conditions for: N-methylaniline EAC w.z. = 0,2 mg/m ³ ; for aniline EAC w.z. = 0,3 mg/m ³ .
8.2 Measures for harmful substances content in admissible concentrations	Exchange blowing-exhausting and local ventilation systems, possibility of natural ventilation. Sealed equipment and vessels. Periodical control of harmful substances in air of working zones, off-scheduled control – in case of leakage liquidation. Laboratory works have to be fulfilled only in a fume hood with an operating ventilation system. During works inside of vessels and tanks, oxygen volume ratio has to be not less than 18 %, N-methylaniline concentration – not more than 0,2 mg/m ³ .
8.3 Individual protection means of staff	
8.3.1 General recommendations	To bar from direct contact of stuff with product. To avoid works with product when ventilation is inoperative, to use personal protection means. Not to smoke, to take meals in areas when the product is manufactured, used or stored. To wash carefully your hands before taking meals. To take a shower after work. To fulfill preliminary at entrance and periodical medical inspections of staff involved. Pregnant and nursing women debar from work.
8.3.2 Respiratory track protection (type of individual protection means for respiratory tracts)	Respirator with gas filter of mark A – at vapors concentration more than EAC value.
8.3.3 Protective means (material, type) (special clothes, special shoes, hands and eyes protection)	Protective clothes, rubber gloves or gloves from polymer materials, leather shoes or rubber boots, apron from polymer materials, sealed goggles – in case of possible contact with product. When protective clothes are dirty, to replace and to launder them.
8.3.4 Life application	Not applied.

9 Physical and chemical properties

9.1 Physical state (aggregate state, color, odor)	Oily transparent liquid with objectionable strong odor of aromatic amino-compounds.
9.2 Parameters of main production properties (temperature range, pH, solubility, n-octanol/water coefficient and other parameters specific for such product type)	Boiling temperature: 196 °C. Melting temperature: minus 57 °C. Density at 20 °C: 0,987 g/sm ³ . Vapors pressure: 0,73 mm HG (at 20 °C), 0,9 mm Hg (at 40 °C). Vapors density at 20 °C: 3,7 g/sm ³ . pH = 7,6 log Kow = 1,7 Solubility in water at 20 °C: badly soluble. Miscibility (substance-water): 1000 mg/l (at 20 °C).

10 Stability and reactivity

10.1 Chemical stability (to indicate decomposition products for instable production)	Stable under recommended storage conditions. Well oxidized under atmospheric air exposure (it becomes dark).
10.2 Reactivity	Product is oxidized, sulphurized, hydrogenated, alkylated.
10.3 Conditions to be avoided (including hazardous effects in case of contact with incompatible substances and materials)	To avoid heating above 40°C, contact with inflammation sources, static charge, storage with incompatible substances.

11 Toxicity

11.1 General exposure characteristic (evaluation of hazard (toxicity) degree exposure on human organism and its hazard effects)	Highly dangerous (toxic) substance on any effect for human organism. Irritant. Causes acute and chronic poisoning.
11.2 Exposure ways (inhalation, ingestion, skin and eyes contact)	Inhalation, skin and eyes contact, ingestion.
11.3 Affected organs, tissues and systems of human	Central and peripheral nervous systems, vascular and respiratory systems, blood system, liver, kidneys.
11.4 Hazardous effects at direct contact with the substance and effects consequences (irritant action on top respiratory tract, eyes, skin; dermal resoptive and sensitizing actions)	Methemoglobin former (causes hypoxia due to hemoglobin transformation to methemoglobin). Eyes mucosa irritant. Absorption through skin is determined (penetrates via uninjured skin) Sensitizing action on skin is weak.
11.5 Subsequent exposure consequences on organism (influence on reproductive function, carcinogenicity, mutagenicity, cumulativity and other chronic effects)	Cumulativity is moderate. Possesses weak mutagenicity. Causes embryotropic and gonadotropic effects.
11.6 Acute toxicity limits (DL ₅₀ , exposure way, animal species, CL ₅₀ , exposure time h), animal species)	DL ₅₀ = 360 mg/kg; rats DL ₁₀₀ = 3000 mg/kg; rabbits

12 Ecological information

12.1 Main effects on environment (ambient air, water reservoirs, soil, including observable exposure symptoms)	Pollutes atmosphere air and water reservoirs. Gets odor to water if penetrated into reservoirs, results in death of reservoirs inhabitants.
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12.2 Exposure ways on environment Non-observance of storage and transportation requirements, dumping to water reservoirs, accidents and emergency situations.

12.3 Main exposure characteristics on environment

12.3.1 Hygienic standards

(extreme admissible concentrations of atmosphere air, water including fish reservoirs, soil)

Table 2

Components	EAC or SPLI of atmosphere air, mg/m ³ (LHI ¹ , hazard class)	EAC or SPLI of water ² , mg/l (LHI, hazard class)	EAC or SPLI of fish ³ , mg/l (LHI, hazard class)	EAC or SPLI of soil, mg/kg (LHI)
N-methylaniline	0,04 (reflective, hazard class 3)	0,3 (organoleptic odor, hazard class 2)	Not determined	Not determined

12.3.2 Ecotoxicity

(CL, EC, NOEC and other for fishes (96 h), daphnia (48 h), algae (72 or 96 h) and other)

Acute toxicity for fishes:

CL₅₀ = 100 mg/l, Pimephales promelas, 96 h.

CL₅₀ = 38 mg/l; Oryzias latipes, 48 h.

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

Stable under adiabatic conditions ($\tau_{1/2}$ = 1-15 days).

Transforms in environment forming N-Methylaniline oxide.

BCF = 0,7-4,1 mg/l Cyprinus carpio, (carp), 6 weeks at concentration 1 mg/l; BCF = 10 Cyprinus carpio, (carp), 6 weeks at concentration 0,1 mg/l.

13 Wastes (residues) disposal

13.1 Safety precautions at handling of wastes forming during application, storage, transportation

Safety precautions with wastes - as with the product. To use personal protection means. To store wastes in sealed reservoirs. See points 7 and 8.

13.2 Points and methods of wastes neutralization, disposal or liquidation including tare (packing)

To send liquid wastes of N-methylaniline for thermal neutralization. To collect solid residues (absorbent material) into containers and to send to landfills or to special areas, prescribed by the local sanitary or conservation authorities.

To neutralize contaminated tares by 1% solution of hydrochloric acid, to rinse them by hot water or by direct steam. To send wash waters to treatment facilities.

13.3 Life application

Not applied.

14 Transportation requirements

14.1 UN number

UN 2294

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

14.2 Proper shipment and transport name

Proper shipment name:
N-METHYLANILINE
Transport name:
N-methylaniline technical approved

14.3 Applied transport means

Product is transported by all transport means according to regulations of hazardous cargo transportation prescribed for each transport mean.

14.4 Cargo hazard classification under GOST 19433-88:

- class 6
- subclass 6.1

¹ LHI - limiting harmful index (reflective).

² Water of aquatic objects of domestic water supply and amenity needs systems

³ Water of aquatic objects for fishery (including maritime)

- classification code 6112 (GOST 19433)
(according to GOST 19433 and for railway transportation) 4213 (for railway transportation)
- danger sign number 6a



14.5 Cargo hazard classification under UN Recommendations on the Transport of Dangerous Goods:

- subclass 6.1
- additional danger No
- UN packing group III

14.6 Transport marking:
(manipulation signs under GOST 14192-96)



«Sealed ackage»

14.7 Emergency cards
(for railway, maritime and other transportations)

№ 608 (for railway transportation)
F-A, S-A (for marine transportation)

15 International and national legislation

15.1 National legislation

15.1.1 Laws of RF «On technical regulation»
«On environment protection»
«On sanitary-epidemiological prosperity of population»
15.1.2 Documentation regulating Certificate of State Registration
requirements on human and № RU.77.99.32.008.E.002601.06.17 of 08.06.2017.
and environmental protection

15.2 International conventions and agreements (product regulation by Montreal protocol, Stockholm Convention etc.) Not regulated by international conventions and agreements.

16 Additional information

16.1 Revision (reissue) of Safety Data Sheet SDS is re-registered upon expiration date.
Previous SDS RPB No. 00204168.24.34302 of 19.05.2014.