

MATERIAL DATA SAFETY SHEET



Pursuant to the Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), EU /830/2015

Trade name: *Polyethylene*

Date of elaboration/update: 2010-12

Date of revision: 2017-11

Revision: 2.2 instead of v.2.1 from 2016-05

1 Identification of Substance / Preparation Identification of Company / Undertaking

1.1 Identification of Substance / Preparation

Polyethylene

REACH registration number:

Ethylene (monomer): **01-2119462827-27-0010**

Hexene-1 (monomer): **01-2119475505-34-0008**

Butene-1 (monomer): **01-2119456615-34-0049**

Synonyms:

Polyethylene, polymer of ethylene, copolymer of ethylene and butene-1, copolymer of ethylene and hexene-1, high density polyethylene (HDPE), low density polyethylene (LDPE), medium density polyethylene (MDPE)

Molecular formula:

- homopolymer of ethylene

$(-CH_2-CH_2-)_n$

- copolymer of ethylene and butene-1

$[(-CH_2)_3-CH(C_2H_5)]_{n+m}$

- copolymer of ethylene and hexene-1

$[(-CH_2)_3-CH(C_4H_9)]_{n+m}$

1.2 Use:

Is used for making pipes, fittings, sheets, tubular film, flat-die film, fibers, strands, packing materials, technical/ household, medical purpose articles, designed for contact with foodstuff, toys

1.3 Producer/importer/distributor:

Supplier/producer
Address

PJSC Nizhnekamskneftekhim
RF, Tatarstan, 423574, Nizhnekamsk

PJSC Nizhnekamskneftekhim
+7(8555)377445

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Emergency telephone number:
- product recipient country
- country of origin

To be specified in each country by the consumer. See Section 16 of this SDS
+7 (8555) 37-72-07, (8555) 37-78-30,
+7 (8555) 37-72-65, (8555) 37-74-45
8.00 am – 5.00 pm in workdays

2 Hazard Identification

2.1 Classification: This product **is not** classified as hazardous according to the Directive 67/548/EC, 1999/45/EC and Provision (EC) №1272/2008 (CLP). Non-hazardous, nontoxic substance. Has no harmful action on human organism at room temperature.

Hazardous health and environmental Hazardous:

Adverse physical-chemical effects: no

Adverse health effect and symptoms:

Eyes	If polyethylene pellets enter eyes, they may damage the eyeball surface and cause mechanic irritation. In the course of processing, hot or melted material may cause serious injury, leading to blindness.
Skin	Pelleted polyethylene is not hazardous, it doesn't cause irritation. In case of skin contact with hot or melted polymer, redness, pain, or burns may occur.
Inhalation	Poisonous vapours, harmful for the respiratory system, are formed only during processing or incineration of polymer at high temperatures, at excess of 140 °C, and may cause irritation of mucous membranes of the upper respiratory tract, pulmonary oedema, shortness of breath. Aspiration and introduction into lungs of polymer dust may cause slow fibroid changes in the lungs.
Ingestion	Low risk of ingestion. Symptoms of poisoning are not established. After ingestion may cause irritation of the gastrointestinal tract, as other foreign matters.

Environmental adverse effect: has no adverse effect on the environment

2.2 Label elements not applicable

2.3 Other hazards: Transforms in the environment under long-term weather effects (atmospheric irradiation, solar irradiation, cold, high temperature)

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3. Composition / Ingredients Information

3.1 Substance data:

Chemical name / Synonyms	EC No.	REACH No.	Index No.	CAS No.	Contents (%)	Classification acc. to Resolution (EC) № 1272/2008 [CLP]	
						Hazard class / category	Hazard symbols
Polyethylene or Polymer of butene-1 and ethane or Polymer of hexene-1 and ethene	no	Beyond registration	no	9002-88-4 25087-34-7 25213-02-9	> 99	Not classified	
Additives: antioxidants, nucleators, stabilizers, dispersant, antistatic substances	no	Beyond registration	no	no	< 1	Not classified	

Chemical additives are added into PE different grades for application performance improvement. Actual additives being polymer composition amounting less than 1% of total concentration, have no adverse effect during its processing and use in articles, as harmful substances content in the additives evolving during thermal destruction is negligible and rank below MAC.

4. First Aid Measures

4.1 Description of first aid measures

General information: Low hazardous substance. Poisoning after introduction into human body was not established and is unlikely.

Inhalation: Do not cause any effects at room temperature. In case of inhalation of the thermal decomposition and incineration products, remove the suffered person to fresh air, give oxygen, and perform artificial resuscitation, if necessary.

Skin contact: Do not cause any effects at room temperature. Wash with water and soap. Hot polymer may cause burns, in this case seek for medical advice.

Eye contact: Wash with large amount of water until removal of the product from the eyes.

Ingestion: Do not cause any effects. Ingestion of small quantities of polymer pellets does not require any measures to be taken.

4.2 Most important symptoms and effects, both acute and delayed

Eyes If polyethylene pellets enter eyes, they may damage the eyeball surface and cause mechanic irritation. In the course of processing, hot or melted material may cause serious injury, leading to blindness.

Skin Pelleted polyethylene is not hazardous, it doesn't cause irritation. In case of skin contact with hot or melted polymer, redness, pain, or burns may occur.

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Inhalation

Poisonous vapours, harmful for the respiratory system, are formed only during processing or incineration of polymer at high temperatures, at excess of 140 °C, and may cause irritation of mucous membranes of the upper respiratory tract, pulmonary oedema, shortness of breath. Aspiration and introduction into lungs of polymer dust may cause slow fibroid changes in the lungs.

4.3. Indication of any immediate medical attention and special treatment needed

Consult a doctor. Burns, caused by hot product, should be treated as thermal burns. The ingested product passes the gastrointestinal tract without any damage to it.

5. Fire Fighting Measures

5.1 Extinguishing media

Recommended fire extinguishing media:

Fire extinguisher of any type, water, steam, fire extinguishing foams, inert gases, sand, asbestos sheets.

Unsuitable fire extinguishing media:

No prohibited fire extinguishing media.

5.2 Special exposure hazards arising from the substance or mixture

The product may decompose at heating, evolving carbon monoxide (CAS №124-38-9), formaldehyde (CAS №50-00-0), acetaldehyde (CAS №75-07-0), acetic acid (CAS №64-19-7), polyethylene aerosol.

Carbon oxides decrease the oxygen (O₂) concentration in the ambient air, may cause toxic effect on cells, interrupting tissue respiration.

Formaldehyde is an irritating gas with general toxic effect, causes strong effect on the central nervous system (T,C; R:23/24/25,34-43; Carc. cat. 3).

Acetaldehyde vapours cause irritation of mucous membranes of the upper respiratory tract, shortness of breath, brassy cough, bronchitis, pneumonia (Xi; R:12,36/37,40; Carc. cat. 3).

Vapours of the acetic acid are irritative to skin and mucous membranes of the upper respiratory tract (C; R:10,35).

Polymer dust may form explosive mixtures with air.

5.3 Advice for fire fighters

Use fire protective clothing and self-contained breathing apparatus. Clear fire area of all non-emergency personnel

6 Accidental Release Measures

6.1 Personal safety measures

Use fire protective clothing and self-contained breathing apparatus in case of fire.

Use sealed equipment and containers; ventilate the working areas. Use grounded equipment, explosion-proof lighting, sparkless tools.

6.2 Environmental protection measures

Prevent contamination of water basins and soil.

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- 6.3 Clean up methods** Sweep the polyethylene pellets and put into an appropriate container for disposal or recovery.
- 6.4 Additional advice** no

3 Handling and Storage

7.1 Handling

General precautions:

- Protective means** Use input / exhaust and local ventilation. Use sealed production equipment. Grounding of equipment is obligatory to avoid electrostatic discharge, keep relative humidity below 50 %, working places should be equipped with rubber mats. Polymer dust may form explosive mixtures with air.
Use personal protective equipment. Remove all ignition sources. Polyethylene pellets, dispersed over the floor, may present the danger of slippage. The product should be swept and collected with a scoop or a vacuum cleaner into a clean container.
- Incompatible substances** Do not store with oxidants, acids, and alkalis.
- Aerosol and dust prevention** Use input / exhaust and local ventilation. Use air-tight production equipment. Use it only in areas with good ventilation.
- Environmental protection:** Reduce PE losses during transportation and storage, avoid discharge into water basin and sewer system
- Industrial health:** Use of personal protective equipment. After working with the product should be washed.

7.2 Conditions for safe storage

- Inflammation and explosion precautions:** Exclude sources of open flame. Grounding of equipment is obligatory to avoid electrostatic discharge. Use sparkless tools.
- Technical measures storage conditions::** Polyethylene should be stored in a closed, dry area, excluding exposure to the direct sunlight, on the shelves or on the pallets, with elevation over the floor level of >5 cm, distance to the heating appliances >1 m, storage temperature below 30 °C, and relative humidity below 80 %.
- Packing materials:** - plastic sacks
- Requirements for storage space and tanks storing:** Room temperature shouldn't exceed 30 °C.
- Other information in regard to storage conditions:** Storage life is not more than 1 year.

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7.3 Specific end uses: no

8 Exposure Control / Personal Protection

8.1 Permissible exposure limits

Due to its physical and chemical properties and low toxicity, the pelleted polyethylene does not require health standards to be established.

Volatile products of the thermo-oxidative decomposition may be evolved during PE processing:

PEL_{working areas, PE aerosol} 10 mg/m³, Hazard class 3

PEL_{working areas, formaldehyde} 0.5 mg/m³, Hazard class 2

PEL_{working areas, acetaldehyde} 5.0 mg/m³, Hazard class 3

PEL_{working areas, carbon monoxide} 20 mg/m³, Hazard class 4

8.2 Professional exposure control

Keep the concentration of the hazardous substances in permissible limits by using input / exhaust ventilation in the areas of maximum air contamination.

Personal protection

Use protective cotton clothes, anti-slipage boots.

Respiratory protection:

In normal working conditions – not required.

In emergency conditions – filter masks, respirators.

Hand protection:

Cotton gloves, heat-protective gloves for operations with hot product.

Eye protection:

Safety glasses for operations with melted product.

Skin protection

Protective cotton clothes.

Environmental exposure control

Measurements of the contaminant concentrations during thermal processing.

In everyday life:

Pelleted polyethylene is not used in everyday life.

9. Physical / Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Solid white pellets
Odour	No odour or slight sweet odour
Odour threshold	Not established
pH	Not applicable
Softening temperature	85-127 °C
Melting point	103-110 °C (for LDPE) 124-137 °C (for HDPE)
Flash point	Not established
Ignition point	300 °C
Auto-ignition point	400 °C
Vapour pressure	Not applicable

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Density	0.91-0.93 g/cm ³ at 20 °C (for LDPE) 0.91-0.97 g/cm ³ at 20 °C (for HDPE)
Solubility in water	Not soluble
Solubility in other solvents	Soluble in aliphatic hydrocarbons, non-soluble in aromatics at room temperature, soluble in aromatics at temperatures above 90 °C.
Vapour density (air = 1)	Not applicable
9.2 Other information	none

10. Stability and Reactivity

Contains stabilizer.

10.1 Activity	It reacts with strong oxidizing agents
10.2 Stability	Extremely stable at normal conditions.
10.3 Possibility of dangerous reactions	Upon contact with an open flame is lit smoky flame
10.4 Conditions, inducing hazardous reactions	Heating above 140 °C
10.5 Materials, inducing hazardous reactions	Strong oxidants, acids, alkalies
10.6 Hazardous decomposition products	Carbon oxides, formaldehyde, acetaldehyde, acetic acid

11. Toxicological Information

11.1. Information on toxicological effects

Acute oral toxicity	LD50 polyethylene aerosol >5000 mg/kg, intragastric, rats
Acute dermal toxicity	Non-toxic
Acute inhalation toxicity	LC50 polyethylene aerosol >12000 mg/m ³ , 0.5 hr, mice
Skin irritation	Not irritating
Eye irritation	Not irritating
Respiratory irritation	Not irritating
Sensitisation	No
Repeated dose toxicity	No
Mutagenicity	No
Carcinogenicity	No
Reproductive and developmental toxicity	No

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12. Ecological Information

12.1 Ecotoxicity:	Pelleted, stabilized polymer presents no hazard for the environment in the normal conditions of use, transportation, and storage.
12.2 Persistence / degradability:	Stable at normal use conditions. Undergoes transformation in the environment at durable atmospheric exposure (atmospheric precipitations, solar irradiation, cold, high temperatures).
12.3 Bioaccumulation:	Does not accumulate
12.4 Mobility:	Loose product may be spread over the surface of soil, floats on the surface of water.
12.5 PBT/vPvB:	Does not meet criteria.
12.6 Other negative effects:	Not established

4 Utilization and/or disposal of waste (remains)

13.1 Methods of waste (residue) disposal

Solid wastes of polyethylene processing are not toxic, do not need decontamination, and are subject to processing. Wastes, not suitable for processing, are incinerated in appropriate sites.

Waste code

07 02 99 wastes from the MFSU of plastics, synthetic rubber (not otherwise specified)

S61 – avoid release into the environment

14. Transport information

ADR/ RID	Not classified
IMDG	Not classified
IATA	Not classified
IMO	Not classified
Class	Not classified
Packaging group	-
Classification code	-
Hazard identification number	-
UN number	Not classified
Proper shipping name	Polyethylene

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15. Regulatory Information

National legislation:

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

16. Other Information

Information sources: ESIS – European Chemical Substances Information System (European Chemicals Bureau).
Hazardous Substance Data Bank (HSDB).-U.S.National Library of Medicine, 2001-1.
ECHA – European Chemical Agency

Changes in SDS:

Revision 2.1: all sections are revised in accordance with EU / 830/2015

Revision 2.2: Amendments to Section 14 in the IMO Classification

National emergency telephone numbers:

Country	Phone number
Austria	+43 1 406 43 43 Poison Control Centre
Belgium	070 245 245 Centre antipoisons
Bulgaria	+35 929 154 233 Национален токсикологичен информационен център
Croatia	(+385 1) 23-48-342 Poison Control centre
Cyprus	+35 7 22405611 Department of Labour Inspection
Czech Republic	+420 224 919 293, +420 224 915 402 Toxikologické informační středisko
Denmark	82121212 (round-the-clock) AKUTHJALP VED FORGIFTNING
Estonia	16662 (круглосуточно), (+372) 626 93 90 Poisoning Information Centre
Finland	09 471977, 094711 (round-the-clock) Poison Information Centre
France	+33 0145425959 (round-the-clock) ORFILA (INRS)
Germany	+ 49 231 9071 2971 BAuA Information Centre
Greece	No information

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Hungary	(1-800)201-199 (round-the-clock) Az Egészségügyi Toxikológiai Tájékoztató
Iceland	+354 543 2222 Eitrunarmiðstöð
Ireland	01 8092566 , 01 8379964 National Poisons Information Centre
Italy	+39 06 59 94 37 33 Telephone (for technical and scientific issues)
Latvia	+371 67042473 National emergency telephone
Liechtenstein	No information
Lithuania	+370 52 20 5236, +370687 53378 Neatidėliotina informacija apsinuodijus
Luxembourg	070 245 245 Centre antipoisons
Malta	21243314 – Florianna, 22563000 – Rabat, 22695701/2 – Mosta.
Netherlands	030-2748888 Just for the information of the medical staff in cases of acute intoxication
Norway	22 59 13 00 (round-the-clock) Giftinformasjonen
Poland	No information
Portugal	808 250 143
Romania	No information
Slovakia	No information
Slovenia	No information
Spain	+ 34 91 562 04 20
Sweden	112 – ask poisons
United Kingdom	No information

Legend of abbreviations

- № CAS – registry number of the substance in Chemical Abstracts Service
- № EC – EINECS and ELINCS Number
- CLP – Classification, Labelling and Packaging
- PBT – Persistent, Bioaccumulative and Toxic substance
- vPvB – very Persistent, very Bioaccumulative substance
- DNEL – Derived No Effect Level
- DMEL – Derived Minimum Effect Level
- PNEC – Predicted No Effect Concentration
- LD-50 – Lethal Dose to 50% of a test population (Median Lethal Dose)
- LC-50 – Lethal Concentration to 50 % of a test population
- NOAEC – No observed Adverse Effect Levels
- EC-50 – half maximal Effective Concentration
- ADR – European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID – Regulations concerning the International Carriage of Dangerous Goods by Rail
- ADN – European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- IMDG – International Maritime Dangerous Goods
- IATA – International Air Transport Association

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IMO – International Maritime Organization
SU – Sector of Use
PROC – Process Category

The information in this MSDS is based on our current knowledge and applicable legislation and is intended to describe the principles of safe work with this product. The product shouldn't be used in the purposes, different from described in Section 1. It is the responsibility of the user to meet all requirements of the local norms and regulations. This information should not be construed as guaranteeing the quality of the product.