



- IUPAC** – International Union of Pure and Applied Chemistry
- GHS** – UN Recommendations ST/SG/AC.10/30 “Globally Harmonized System of Classification and Labeling of Chemicals”
- DSD** – EU Directive 67/548/EEC for dangerous substances
- № CAS** – Chemical Abstracts Service Registry Number
- № EC** – Substance number in the inventory of the European Chemical Agency
- Safety Data Sheet** – Safety Data Sheet of Chemical Products (substance, mixture, material, industrial wastes)
- MAC** max.single./ shift av. – Maximum admissible concentration of a chemical in the air of working area, mg/m<sup>3</sup> (maximum single/shift average)
- FEACC** Foreign Economic Activity Commodity Classification  
\* when supplying to the domestic market the code is not indicated
- Material Safety Data Sheet corresponds to:**  
UN Recommendations ST/SG/AC/ 10/30 GHS  
Regulation (EC) № 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of chemicals. Annex II. (REGULATION (EC) № 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) of 18 December 2006)

**Signal word:****Danger**

## 1. IDENTIFICATION OF THE CHEMICAL PRODUCTS AND INFORMATION ABOUT THE MANUFACTURER / SUPPLIER

### 1.1 Chemical product identifier

|                                       |   |
|---------------------------------------|---|
| <b>1.1.1 Technical name:</b>          | Methyl Acetylene -Allene Fraction [1]   |
| <b>1.1.2 Relevant identified uses</b> | Is used during gas-flame treatment of metals, organic synthesis and for other purposes. |

### 1.2 Information about the manufacture and/or supplier


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| <b>1.2.1 Complete official name of the organization:</b> | Open Joint-Stock Company Naftan, the plant Polymir       |
| <b>1.2.2 Complete postal address:</b>                    | 211440, Novopolotsk, Vitebsk Region, Republic of Belarus |
| <b>1.2.3 Contact telephone number:</b>                   | +375 (214) 55-72-54                                      |
| <b>1.2.4 Fax:</b>  | +375 (214) 55-72-21                                      |

## 2 HAZARDS IDENTIFICATION

**2.1 General hazard level of the chemical product:** MAF belongs to the 4<sup>th</sup> class of hazard (moderately hazardous substance) in accordance with GOST 12.1.007 [1].

**2.2 General hygienic standards for the product in the air of the working area:** MAC<sub>max.single</sub> = 135 mg/m<sup>3</sup> [1].

### 2.3 Label elements (under GOST 31340-2007)

|                                     |  |
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| <b>2.3.1 Description of hazard:</b> | <p><u>Hazard Pictogram:</u></p>  <p><u>Signal word «Danger».</u><br/><u>Characteristics of hazard:</u><br/>Highly hazardous (highly inflammable matter).<br/>Pressurized gas. Bottles (vessels) can explode at heating.<br/><u>Hazard codes:</u> H220; H280.<br/><u>Precautionary codes:</u> P410+ P403; P202; P210; P281; P501</p> |
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## 3. COMPOSITION (INFORMATION ON INGREDIENTS)

### 3.1 General information about the product

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|---|---|---|--------------|----------------|
| <b>3.1.1 Name</b>                                       |   |   |              |                |
| Chemical (under IUPAC):                                 | No name   |   |              |                |
| Trade:  | Methyl Acetylene -Allene Fraction   |   |              |                |
| Synonyms:   | Propyne-propadiene fraction   |   |              |                |
| <b>3.1.2 Chemical formula:</b><br>(for main components) | Methyl Acetylene (Propyne) H <sub>3</sub> C-C≡CH;<br>Allene (Propadiene) H <sub>2</sub> C=C=CH <sub>2</sub> [1]                         |   |              |                |
| <b>3.1.3 General composition:</b>                       | MAF consists of a mixture of liquefied gases, namely, methyl acetylene, allene, propane, propylene and hydrocarbons C <sub>4</sub> [1]. |   |              |                |
| <b>3.2 Components:</b>                                  | Mass fraction %   | MAC <sub>max.single</sub> , mg/m <sup>3</sup> | Hazard Class | Data Source    |
| Methyl Acetylene (Propyne)                              | 38.0 ÷ 47.1   | 135 (for MAF)                                 | 4            | [1], [2], [3]. |
| Allene (1,2- propadiene)                                | 27.8 ÷ 37.0   | No data                                       | No data      |                |
| Propane   | 14.6 ÷ 24.2   | 300   | 4            | [4].           |
| Propylene (propene)                                     | 0.8 ÷ 10.4  | 100   | 4            | [3].           |
| Hydrocarbons C <sub>4</sub>                             | 1.0 ÷ 6.0   | 300 (for saturated hydrocarbons)              | 4            | [3].           |
| Acetonitrile, not more                                  | 0,5   | 10  | 3            | [2].           |

|                             | <b>CAS number:</b> | <b>EC number:</b> |
|-----------------------------|--------------------|-------------------|
| Methyl Acetylene            | 74-99-7            | 200-828-4         |
| Allene                      | 463-49-0           | 207-335-3         |
| Propane                     | 74-98-6            | 200-827-9         |
| Propylene                   | 115-07-1           | 204-062-1         |
| Hydrocarbons C <sub>4</sub> | 68476-52-8         | 270-691-3         |
| Acetonitrile                | 75-05-8            | 200-835-2         |

#### 4 FIRST-AID MEASURES

##### 4.1 General recommendations:

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| <b>4.1.1 Intoxication by inhalation:</b> | In case MAC has been exceeded MAF vapors cause narcotic effect with distinct irritating effect to mucous membranes. Symptoms of intoxication: dizziness, dyspnea, headache. The cumulative effect is negligible. [1]. |
| <b>4.1.2 Skin contact:</b>               | MAF vapors cause redness and itching of the skin. Spillage of liquid MAF onto the skin of the human may cause frostbite. [1].   |
| <b>4.1.3 Eye contact:</b>                | Smarting in eyes, lacrimation [1].  |

##### 4.2 First-aid measures

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| <b>4.2.1 Intoxication by inhalation:</b> | First-aid measures for poisoning with MAF: evacuate the victim from the dangerous area to fresh air, release from the tight pieces of clothing, ensure warmth, rest, if necessary - artificial respiration. [1].<br>If it is necessary to seek for professional medical help, you should have with you the information about the features of impact on the body of the products/substance, which have come into contact [1].<br>Call an ambulance. Fresh air, rest, warm, clean clothes. Rinse eyes and skin with water. [5]. |
| <b>4.2.2. Eye and skin contact:</b>      | Remove contaminated clothes. Rinse eyes and skin with water [5].  |
| <b>4.3 First-aid measures:</b>           | For immediate assistance at the working places there should be arranged the eyewash fountains [6].<br>At the workplaces there should be sets of kits and medicines detoxifying action of harmful substances and the means used for first aid. [6].<br>The list of items included into the multipurpose first aid kit is in accordance with [7].   |

#### 5 MEASURES AND MEANS OF FIRE AND EXPLOSION SAFETY PROVISION

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| <b>5.1 General characteristic of fire and explosion hazard:</b> | MAF is a flammable and explosive substance.<br>Category and group of explosiveness of MAF mixture with air is IIB under GOST 30852.11 and T2 under GOST 30852.5 correspondingly [1].<br>Heavier than air. Accumulates in low areas of surface, basements, tunnels [5].<br>Flammable. Ignited by sparks and flame. Forms explosive mixtures with air at open sites. The bottles (vessels) may explode when heated. Explosive mixtures are formed in empty vessels [5].<br>Mixtures with air are explosive [13], [15].<br>Highly dangerous (highly flammable substance) [4]. |
| <b>5.2 Fire and explosion hazard parameters:</b>                | Concentration limits of flammability in the mixture with air<br>lower 2.3 % vol. [1]<br>upper 11.9% vol. [1].<br>Vapor flammability range, % vol.<br>In the mixture with air 2.3-11.1<br>In the mixture with oxygen 2.5-60 [4].  |

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|   | Auto-ignition temperature (454 ± 3) °C [1].<br>Boiling point from minus 42 °C to minus 20 °C [1].<br>Auto-ignition temperature in air 335 °C [4].<br>Temperature developed at burning 2930 °C [4]. |
| <b>5.3 Danger caused by combustion and / or thermal destruction products:</b> | At high temperature complete burning with generation of CO <sub>2</sub> and H <sub>2</sub> O [13].   |
| <b>5.4 Recommended fire extinguishing media:</b>                              | Carbon dioxide and powder fire-extinguishers, fire-extinguishing blanket [1].<br>Fine sprayed foam [5].<br>Inert gases [14].   |
| <b>5.5 Fire-fighting personal protective equipment:</b>                       | In case of fire wear flame retardant suit complete with a self-rescuer SPI-20 [5].   |

## 6 MEASURES FOR PREVENTION AND ELIMINATION OF ACCIDENTS AND EMERGENCY SITUATIONS AND THEIR CONSEQUENCES

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| <b>6.1 Measures to prevent harmful influence on the people, environment, buildings, constructions, etc. in case of emergency and accidents</b> |  |
| <b>6.1.1 General actions required:</b>   | Call for gas rescue service of your area. Report to the bodies of Sanitary and Epidemiological Surveillance [5].<br>Arrangement and conduction of activities in case of emergency when transporting by railway is performed in accordance with the requirements of TKP 238 ( <i>Technical Code of the Republic of Belarus</i> ) [8].   |
| <b>6.1.2 Individual and collective protective equipment in case of fire, spillage:</b>   | General extract and input ventilation of rooms; local exhaust devices with downdraft hoods, non-sparking tools; usage of equipment of anti-corrosion, anti-static, fire and explosion-proof and impermeable design, prevention of releases, strict observance of process mode, air state monitoring [1]<br>For chemical survey and for the head of the activities – PDU-3 (within 20 minutes). For emergency rescue brigades – isolating gas mask IP 4M and protective clothes [5].              |
| <b>6.2 Procedures for liquidation of accidents and emergencies</b>   |  |
| <b>6.2.1 Procedures in case of spillage, release, leak:</b>  | Isolate hazardous area in the radius not less than 200 m. Adjust the mentioned distance in accordance with the results of chemical survey, eliminate not authorized personnel. Keep upwind side. Avoid low places. Observe fire safety measures. <i>Do not smoke</i> . Eliminate sources of fire and sparks. Enter the hazardous area wearing personal protective equipment. Render first aid to the victims. People from the center of contamination shall be sent for medical examination [5]. |
| <b>6.2.2 Recommendations:</b>  |  |
| - <i>To ensure personnel/user safety</i>   | Observe fire safety measures.<br>Combined extract and input ventilation of rooms, use personal protective equipment (in accordance with recommendations of sections 7, 8)  |
| - <i>For environmental protection:</i>   | In case of tare (packaging) break and other possible emergency situations:<br>- stop working at hazardous area;<br>- dike spillage area, do not let substance release into water basins [5].   |
| - <i>In case of release:</i>   | In case of small leakage the leak shall be eliminated subject to observing safety measures. In case of intensive gas leakage, ignite leaking gas and let it burn out monitoring by water jets, provided that consultation with the spe-  |

cialists (from fire-fighting, emergency services) took place. Isolate the area until gas has dissipated. Do not touch the leaked substance! [5].

**- For vapor dissipation:**

Water spray [5].

**6.2.3 Action in case of fire**

Do not approach burning containers. Cool the containers with water from a maximum distance. In case of leakage do not stop burning. Extinguish with water mist from a maximum distance. [5].

## 7 CHEMICAL STORAGE AND HANDLING PRECAUTIONS

### 7.1 Safety measure when handling chemical products

**7.1.1 Safety measures and collective means of protection:**

Production rooms shall be equipped with general extract and input ventilation in accordance with GOST 12.4.021.  
Production process and equipment shall correspond to the requirements of GOST 12.2.003, GOST 12.2.049, GOST 12.2.061 and sanitary norms, rules and hygienic regulations “Hygienic requirements to organization of technology processes and production equipment”, approved by the decree of the Ministry of Health of the Republic of Belarus №93 dated 13.07.2010. Relative humidity in the rooms shall correspond to GOST 12.1.005 [1].  
Electrosafety shall correspond to the requirements GOST 12.1.018, GOST 2.1.019, GOST 12.1.030, GOST 12.1.045. Electric field intensity level at working places shall not be higher than 20 kV/m, monitoring and protection measures in accordance with sanitary norms, rules and hygienic regulations “Hygienic requirements to electromagnetic fields at production conditions”, approved by the decree of the Ministry of Health of the Republic of Belarus № 69 dated 21.06.2010 [1].  
Use non-sparking tools and grounded impermeable equipment. Use personal protective equipment, observe personal hygiene rules, process mode requirements [1].

**7.1.2. Environmental protection measures:**

Equipment, communications, tare must be impermeable. [13].

**7.1.3 Recommendations for safe relocation and transportation:**

MAF shall be transported under GOST 1510 (analogically to liquefied fuel hydrocarbon gases) and rules of design and safe operation of pressure vessels [1].  
MAF is transported by road tank vehicles intended for liquefied gases, in bottles of 50 dm<sup>3</sup> capacity under GOST 15860. Transportation of other products in these tanks and bottles is strictly prohibited. [1].  
In accordance with the norms specified in [16], the bottles are provided to MAF gas manufacture with a residual pressure not less than 0.05 MPa (0.5 kgf/cm<sup>2</sup>).  
During winter season the measures shall be taken to maintain the mentioned residual pressure [1].

### 7.2. Chemical product storage precautions

**7.2.1. Safe storage conditions:**

Storage in horizontal and spherical metal tanks of high pressure, without entrance of atmospheric precipitation and dust [17].  
Bottles intended for MAF storage shall conform to the requirements of Rules of design and safe operation of pressure vessels [18].  
Bottles may be stored both in special rooms and at open sites protected from precipitation and sunlight [18].  
Closed bottle storage houses shall have permanently operating ventilation. It is prohibited to use storage houses without operating ventilation [18].  
Simultaneous storing of bottles and other substance and materials is prohibited [18].  
During handling, storage avoid bottles impact on each other, falling of bottles

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|   | [18].<br>Electrical equipment, electric networks and artificial lighting shall be explosion proof. [1].<br>Storage and usage at basements and ground floors is prohibited [9].   |
| <b>7.2.2 Warranty period</b>                                    | Ten years from manufacture date (in case if conditions of transportation and storage are observed) [1].  |
| <b>7.2.3. Substances and materials incompatible at storage:</b> | <ul style="list-style-type: none"> <li>- At contact with copper and its alloys containing more than 65% of copper explosive copper acetylides can be formed. [1].</li> <li>- Explosive substances, which can ignite because of their properties, causing a fire with explosive effect. <ul style="list-style-type: none"> <li>- Compressed gases, liquefied and dissolved under pressure.</li> <li>- Flammable liquids, mixtures of liquids, liquids containing solids in solution or suspension, which emit flammable vapor with a flash point in closed crucible 61 ° C and lower.</li> <li>- Flammable substances and materials (except explosives), which can be easily ignited during storage and transportation by external ignition sources, as a result of friction, moisture absorption, spontaneous chemical reactions, when heated.</li> <li>- Oxidizing substances and organic peroxides, which can easily release oxygen, support combustion and, under appropriate conditions in a mixture with other substances, cause spontaneous ignition and explosion.</li> <li>- Radioactive substances (isotopes).</li> <li>- Caustic and corrosive substances that cause damage to the skin, mucous membranes of eyes and respiratory tract, metal corrosion and damage to vehicles, can cause fire in contact with organic materials and chemicals.</li> <li>- Substances with relatively low risk during storage [9].</li> <li>- Flammable mineral, vegetable and animal fats [23].</li> </ul> </li> </ul> |
| <b>7.2.4. Materials recommended for tare and packing</b>        | <p>Metal tare [17].</p> <p>Newly made metal tare shall be with inner oil, gasoline and vapor resistant protective coating satisfying to the requirements of spark safety [17].</p> <p>At contact with copper and its alloys containing more than 65% of copper explosive copper acetylides can be formed. [1].</p>   |

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT

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|---|---|
| <b>8.1 Parameters of working zone which must be obligatory monitored</b>                          | <p><i>Air of working zone:</i></p> <p>MAC<sub>max. single.</sub>=135 mg/m<sup>3</sup> (by acetylene) [1], [2].</p>  |
| <b>8.2. Measures to ensure hazardous substance content in the admissible concentration limits</b> | <p>Monitor MAF vapors in the air of working zone [1].</p> <p>Production processes shall be tight, all possible sources of explosion or ignition shall be excluded [1].</p> <p>Operations with MAF shall be carried out in production rooms equipped with general extract and input ventilation. MAF is heavier than air that is why to avoid its accumulation in the lower part of the room the ventilation shall be with downdraft hoods. [1].</p> |
| <b>8.3 Personnel protective equipment</b>   |   |
| <b>8.3.1 General recommendations:</b>   | Usage of personal protective equipment in accordance with typical industrial branch norms approved in the established order.  |
| <b>8.3.2. Respiratory protection:</b>   | Filtering industrial gas masks with a box of grade BKF or A. In case of high concentrations or when working in the enclosed areas – isolating air   |

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|   | line gas masks PSH-1, PSH-2 or analogue in accordance with GOST 12.4.034 [1].<br>Gas mask completed with filters in accordance with the requirements of STB GOST R 12.4.193 [12]. |
| <b>8.3.3. Protective clothes and shoes:</b> | Personnel working with MAF shall have special clothes and shoes, respiratory protective equipment, protective equipment for eyes and skin under GOST 12.4.103, GOST 12.4.034 [1]. |

## 9 PHYSICAL AND CHEMICAL PROPERTIES

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| <b>Physical state:</b>                        | Liquefied colorless gas [1].   |
| <b>Odor:</b>                                  | Distinct, sharp [1].   |
| <b>Gas density:</b>                           | 1.7 kg/m <sup>3</sup> at t=0 °C and P =1013 hPa (760 mm hg) [1].   |
| <b>Relative density (in relation to air):</b> | 1.3 [1].   |
| <b>Liquid density:</b>                        | Not applicable   |
| <b>Boiling point:</b>                         | minus 23.3 °C (for methyl acetylene) [13];<br>minus 32.0 (for allene) [13];<br>from minus 42 to minus 20 °C [1]. |

## 10 STABILITY AND REACTIVITY

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| <b>10.1 Chemical stability</b>                                 | MAF does not enters into chemical interaction with water, does not form toxic compounds in air [1].   |
| <b>10.2 Possibility of hazardous reactions</b>                 | At contact with copper and its alloys containing more than 65% of copper explosive copper acetylides can be formed. [1].  |
| <b>10.3 Reactivity:</b>  | Easily attaches halogens, oxidizes with formation of peroxides and polyatomic alcohols [13].<br>Methyl acetylene is hydrated with formation of propene and propane, easily oxydizing. Polymerized under influence of UV light [15]. |
| <b>10.4 Conditions to avoid:</b>                               | Operations with open flame [1].<br>Effect from precipitation and sunlight [18].<br>Impact of bottles on each other, falling of bottles [18].  |
| <b>10.5 Incompatibility with other substances (materials):</b> | In accordance with the recommendations of the section 7.  |
| <b>10.6 Hazardous decomposition products:</b>                  | No data.  |

## 11 TOXICOLOGICAL INFORMATION

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| <b>11.1 General characteristics of exposure</b>  | Class of hazard 4 according to the degree of the effect on the human organism for methyl acetylene-allene fraction [1].   |
| <b>11.2 Routes of exposure:</b>  | Through respiratory tracts, skin, eyes [1], [5].  |
| <b>11.3 Target organs, tissues, systems:</b>   | If MAC is exceed, MAF vapors cause narcotic effect with distinct irritating action to mucous membranes. In case of skin contact liquid MAF can cause frostbites. [1].                                   |
| <b>11.4. Information about hazardous impacts at direct contact with the substance:</b> | MAF vapors cause redness and itching of skin, lacrimation, smarting eyes. In case of skin contact liquid MAF can cause frostbites. [1].<br>Burns and injuries are possible at fire and explosions. [5]. |
| <b>11.5. Information about hazardous long-term effects on an organism:</b>             | Cumulative effect is negligible [1].  |



**11.6. Acute toxicity values:****By ingestion:** No data.**By vapor inhalation:**LC<sub>50</sub> = 570000 ppm 15 min (rats) (by propylene) [19];LC<sub>50</sub> = 658 mg/kg 4 h (rats) (by propylene) [19].LC<sub>50</sub> = 80000 15 min (rats) (by propane) [19];**Skin contact:** No data.**11.7 Doses (concentrations) with a minimal toxic effect:**

No data.

**12 ENVIRONMENTAL IMPACT INFORMATION****12.1 Polluting substance code**2871 – by methyl acetylene  
2872 – by mixture (MAF) [10].**12.2 General characteristic of the environmental impact:**

MAF does not enter into chemical interaction with water, does not form toxic compounds in air [1].

**12.3. Routes of the environmental impact:**

Atmospheric air [19].

**12.4 Observable features of impact:**

No data.

**12.5 The most important characteristics of environmental impact****12.5.1 Hygienic standards:****Atmospheric air:***By methyl acetylene*MAC<sub>max.single</sub> = 1500.0 µg /m<sup>3</sup> [12].MAC<sub>average for 24 hours</sub> = 450.0 µg /m<sup>3</sup> [12].MAC<sub>average per year</sub> = 150.0 µg /m<sup>3</sup> [12].*By mixture*MAC<sub>max.single</sub> = 3000.0 µg /m<sup>3</sup> [12].MAC<sub>average for 24 hours</sub> = 1200.0 µg /m<sup>3</sup> [12].MAC<sub>average per year</sub> = 300.0 µg /m<sup>3</sup> [12].**12.5.2 Ecotoxicity values:****Acute toxicity for fish:**TLM<sub>96</sub> > 1000 mg/l 96 hours (by propylene) [19].**Chronic toxicity for fish:**

No data.

**Acute toxicity for water invertebrates**

No data.

Taking into account high capacity to evaporate from water, propylene and propane, as it is expected, are not dangerous for water flora and fauna [19].

**In sewage waters:** no data**12.5.3 Migration and transformation in the environment:**

Taking into account high capacity to evaporate, propylene and propane are not dangerous for water life. [19].

Biodegradable [19].

**13. DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods:**

No solid or liquid waste is generated.

**13.2 Information on removal, disposal and/or liquidation of wastes of the substance (material):**

In accordance with recommendations of sections 7, 8.

**13.3 Methods and places for liquidation (disposal) of wastes:**

Rendering wastes (residues) harmless (disposal) should be carried out only at sites of waste disposal, operation of which shall be in accordance with the requirements established in the "Law on Waste Handling", other acts

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|                                       | of legislation on waste handling, environmental protection, including technical regulations.<br>The specific methods for the elimination of hazardous waste are developed with account for specificity and actual conditions of a specialized company. [20]. |
| <b>13.4 Tare treatment:</b>           | For cleaning, washing, steaming and neutralization of cisterns, demountable production units, drums and other containers containing hazardous chemicals special washing facilities shall be equipped.[ 20].  |
| <b>13.5 Transportation of wastes:</b> | Not transported.   |

#### 14 TRANSPORT INFORMATION

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|---|---|
| <b>14.1 UN number:</b>  | 1965 [21], [22].  |
| <b>14.2 Proper shipping name:</b>                                   | Liquefied mixture of hydrocarbon gases H.Y.K. [21], [22].<br>(Methyl Acetylene-Allene Fraction)   |
| <b>14.3 Means of transport:</b>                                     | MAF gas is transported and stored analogically to liquefied fuel hydrocarbon-gases in accordance with the requirements of GOST 1510 [1].<br>MAF is transported in road tank vehicles intended for liquefied gases or in bottles of 50 dm <sup>3</sup> capacity under GOST 15860. Transportation of other products in these tanks and bottles is prohibited [1].<br>For railway transportation specialized tank wagons are used (code P <sub>x</sub> BN (M) or specialized tank containers (guidance on transportable tanks TSO(M)). Maximum degree of filling should not exceed 85% of the tank vessel volume [21]. |
| <b>14.4 Transport hazard classification:</b>                        | - Dangerous Goods Class 2 (gases), Subclass – 2.1;<br>- classification code – 2112,<br>- classification code - 2F (flammable liquefied gas) [21], [22].   |
| <b>14.5 Transport labeling and packing group:</b>                   | Transport labeling under GOST 14192 with indication of the handling mark “Keep away from sunlight”. [1].  |
| <b>14.6 Hazards symbols:</b>  | Hazard code 23 – flammable gas [22].<br>Main hazard symbol - figure 2.1 [22].   |
| <b>14.7 № of the emergency card:</b>                                | Emergency card for transportation by railway № 206 [21], [22].  |
| <b>14.8 Recommendations on safe transportation:</b>                 | Transported in accordance with the rules of the transport of dangerous goods, valid for this mode of transport [1], [21], [22].<br>Special handling provisions CW9, CW10, CW36 [21].<br>Empty bottles, specialized tank wagons and tank containers are transported as dangerous goods under conditions, established for liquefied gases [21], [22].<br>If transported in tanks in quantity more than 3000 liters it is considered the cargo of increased risk [21].   |
| <b>14.9 Hazard information during international transportation:</b> | Transport category 2 [21].  |

#### 15. REGULATORY INFORMATION

##### 15.1 National legislation

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| <b>The laws of the Republic of Belarus</b> | “On the occupational safety” N 356-3 dated 23.06.2008.<br>“On the accession of the Republic of Belarus to the Convention on the Transboundary Effects of Industrial Accidents” N 192-3 or 30.04.2003.<br>“On transportation of dangerous goods” N 32-3 dated 06. 06.2001 (in the edition of the Laws of the Republic of Belarus dated 29.06.2006 N 137-3, dated 20.07.2006 N 162-3, dated 09.07.2007 N 247-3, dated 26.12.2007 N 300-3). |
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“On industrial safety of hazardous production facilities” N 363-3 dated 10.01.2000 (in the edition of the Laws of the Republic of Belarus dated 29.06.2006 N 137-3, dated 20.07.2006 N 162-3, dated 09.11.2009 N 53-3, with amendments introduced by the Decree of the President of the Republic of Belarus dated 19.12.2008 N 689).

“On protection of population and territories from emergency situations of natural and technogenic character” N 141-3 dated 05.05.1998 ( in the edition of the Laws of the Republic of Belarus dated 04.01.2003 N 183-3, dated 14.06.2005 N 23-3, dated 21.07.2008 N 417-3, dated 09.11.2009 N 53-3).

“About Fire Safety” N 2403-XII dated 15.06.1993 (in the edition of the Laws of the Republic of Belarus dated 03.05.1996 N 440-XIII, dated 13.11.1997 N 87-3, dated 11.01.2002 N 89-3, dated 18.11.2004 N 338-3, dated 29.06.2006 N 137-3, dated 20.07.2006 N 162-3, dated 14.06.2007 N 239-3, dated 31.12.2009 N 114-3, with amendments introduced by the Decree of the President of the Republic of Belarus dated 01.09.1995 N 349, by the findings of the Constitutional Court dated 26.12.1995 N 3-29/95).

“On environmental protection” N 1982-XII dated 26.11.1992 (in the edition of 02.07.2009);

“On consumer rights protections” N 90-3 dated 09. 01.2002 (in the edition of the Law of the Republic of Belarus dated 08.07.2008 N 366-3).

“On the sanitary-epidemiological welfare of population” dated 23.11.1993 N 2583-XII (in the edition of 16.05.2006 N 109-3).

“On waste management” N 271-3 dated 20.07.2007 (in the edition of the Laws of the Republic of Belarus dated 08.07.2008 N 367-3, dated 28.12.2009 N 93-3).

### 15.2 International legislation

|   |   |
|---|---|
| <b>International conventions and treaties</b> | REGULATION (EC) № 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) of 18 December 2006   |
|   | REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Text with EEA relevance). |
|   | Annex I of Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.)   |
|   | EINECS (European Inventory of Existing Commercial Chemical Substances).   |

### 15.3 Precautionary labeling, valid in EU countries

|                            |   |                                      |
|----------------------------|---|--------------------------------------|
| <b>DSD classification:</b> | MAF   | Not classified                       |
|                            | Methyl-Acetylene  | Not classified                       |
|                            | Allene  | Not classified                       |
|                            | Propane, propylene  | F+; R12                              |
|                            | Hydrocarbons C <sub>4</sub>   | Not classified                       |
|                            | Acetonitrile  | F; R11; Xn; R20/21/22; Xi; R36 [19]. |
| <b>Risk phrases R</b>      | Propane, propylene  | R12                                  |
|                            | +R12 highly flammable   |                                      |
| <b>Safety phrases S</b>    | Propane   | S2, S9, S16                          |
|                            | Propylene   | S2, S9, S16, S33                     |
|                            | +S2 – Keep out of the reach of children.  |                                      |
|                            | +S9 – Keep container in a well-ventilated place.<br>+S16 – Keep away from sources of ignition - No smoking. |                                      |

+S33 – Take precautionary measures against static discharges [19].

**Hazard Symbols:**

[19].

**GHS Classification:****Hazard class and category code:**MAF  
Methyl - Acetylene  
Allene

Not classified [24].

Propane  
PropyleneFlammable gas. Category 1  
Pressurized gas [24].Hydrocarbons C<sub>4</sub>

Not classified [24].

Acetonitrile

Flammable liquid. Category 2.  
Acute oral toxicity. Category 4.  
Acute dermal toxicity. Category 4.  
Acute inhalation toxicity. Category 4.  
Serious eye irritation. Category 2 [24].**Code and characteristics of hazard:****H220** Extremely flammable gas.  
**H280** Contains gas under pressure; may explode if heated.**Precautionary statements:****P410+ P403** Protect from sunlight. Store in a well ventilated place.  
**P202** Do not handle until all safety precautions have been read and understood.  
**P210** Keep away from heat/sparks/open flames/hot surfaces – No smoking.  
**P281** Use personal protective equipment as required.  
**P501** Dispose of contents/container to national legislation.**Hazard Pictograms:**

GHS02



GHS04 [24].

**16. OTHER INFORMATION****16.1 Information about revision (reissue) of SDS**

Revision in accordance with GOST 30333-2007

**16.2 Information sources**

1. TY BY 300041499.043-2009 Methyl-Acetylene-Allene Fraction.
2. Sanitary norms, rules and hygienic standards of the "List of regulated working zone air pollutants." Approved by Decree of the Ministry of Health of the Republic of Belarus 31.12.2008 № 240.
3. GOST 12.1.005-88. General sanitary hygienic requirements to the area of the working zone.
4. A.K. Chernyshev, B.A. Lubys etc. Indications of danger of substances and materials. Multivolume reference book .- M.: Fund named after I. A Sytin, 2005.
5. Emergency cards for dangerous goods transported by railways of CIS, Latvia, Lithuania, Estonia. Minsk, "Tesei" 2009
6. SanPiN «Hygienic requirements for employee labor conditions and maintenance and operation of industrial enterprises» Approved by the Decree of the Ministry of Health of the Republic of Belarus 16.07.2010 N 98
7. The Decree of the Ministry of Health of the Republic of Belarus dated 15.01.2007 г. № 4 "About approval of the list of items contained in first aid kits and the order of their completion" (in the edition of the Ministry of Health dated 25.04.2008 № 75)
8. ТКР 238-2010 Organization and conduction of operations at emergencies with hazardous goods during transportation of them by railway transport on the territory of the Republic of Belarus..
9. PPB RB 1.01-94 General rules of fire safety of the Republic of Belarus for the industrial enterprises..
10. STB 17.08.02-01-2009 Protection of the environment and natural resources. Air. Substances polluting the

air. Codes and the list.

11. Decree of the Ministry of Health of the Republic of Belarus 30.12.2010 №186 «About the approval of the norms of maximum admissible concentrations of pollutants in the atmosphere and safe reference levels of impact of pollutants in the atmosphere of residential areas and places of public recreation».
12. STB GOST R 12.4.193-2006 SSBT. Personal respiratory protection. Gas mask and combined filters. General specifications.
13. Harmful substances in industry. Reference book for chemists, engineers and doctors. Volume 2. Organic substances. Ed. N.V. Lazarev, A.N. Levina. L., "Chemistry", 1976.
14. Fire and explosion hazard of substances and materials and the means of fire-fighting: Handbook in two parts, the 2-nd edition, A.Y. Korolchenko, D.A. Korolchenko – M., Acc. «Science of fire-fighting», 2004, Part 2.
15. Hazardous chemical substances. Hydrocarbons, halogenated hydrocarbons; Reference book. Published under edition of V.A. Filov, etc. – L.: Chemistry, 1990.
- 16 Rules of design and safe operation of pressure vessels. Approved by the Decree of the Ministry of Emergency of the Republic of Belarus dated 27.12.2005.
17. GOST 1510-84. Oil and petroleum products. Labeling, packing, transportation and storage.
18. PPB 2.08-2000 Fire Safety Regulations of the Republic of Belarus for the chemical and petrochemical plants.
19. EINECS (European Inventory of Existing Commercial Chemical Substances).
20. SanPiN 2.1.7.12-42-2005 “Hygienic requirements for accumulation, transportation and disposal of toxic industrial waste”.
21. Annex 2 "Rules for transportation of dangerous goods" to the Agreement about the international railway freight traffic (SMGS). Minsk: Tesei, 2009.
22. Rules for transportation of dangerous goods by rail. - Minsk: Tesei, 2009
23. Rules for transportation of dangerous cargoes by automobile transport in the Republic of Belarus - Minsk, 2005. (Ed. MOE regulations dated 08.12.2010 № 61)
24. REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Text with EEA relevance)).

Note – When using SDS it is recommended to check the validity of the referenced documentation. In case of their withdrawal/amendment apply to valid/amended documents.

The information provided in this Safety Data Sheet is based on the best of our available knowledge and information on the date of its publishing. This information is provided as a guidance only, for safe handling, usage, transportation and storage, and in no case shall be considered as a guarantee or quality specification. To determine the appropriateness of the information for particular purposes the users shall carry out their own investigations.

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