



JOINT - STOCK COMPANY  
«YAROSLAVSKIY TEKHNIЧЕСKIY  
UGLEROD named after V. U. ORLOV»

## SAFETY DATA SHEET

Prepared in accordance with the United States Hazard Communication Standard: 29 CFR 1910.1200 (HCS 2012) and Canada's Workplace Hazardous Materials Information System (WHMIS 2015)

### SECTION 1: IDENTIFICATION

#### 1.1 Product identifier used on the label:

**Product Name:** CARBON BLACK  
**Product Type:** Elemental Carbon (mineral origin)  
**This SDS is valid for the following grades:** N121, N220, N231, N234, N299, N326, N330, N339, N347, N375, N539, N550, N650, N660, N750, N762, N772, N774, П245, П234, П324, П514

#### 1.2 Other means of identification:

**Synonyms:** Furnace Black, Lamp Black

#### 1.3 Recommended use of the chemical and restrictions on use:

**Recommended Use:** As base component (filler) of rubber mixtures used in production of tyres, hoses, gaskets etc  
As pigment in production of paints and varnishes.  
As component in production of toners for printers.  
In production of dyeing concentrates in production of foil, pipes, packages in plastics industry.

**Restrictions on Use:** Tattoo

#### 1.4 Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party:

**Manufacturer:** Joint-Stock Company «Yaroslavskiy tekhnicheskiy uglerod named after V. U. Orlov» (JSC «YATU named after V. U. Orlov») \*\*  
Gagarin St. 74a, Yaroslavl, 150023, Russia\*  
Tel.: + 7 4852 42-51-03  
Fax: + 7 4852 42-52-70, 42-52-80  
E-mail: [info@yatu.ru](mailto:info@yatu.ru)  
E-mail address of competent person responsible for the SDS: [SDS@yatu.ru](mailto:SDS@yatu.ru)

#### 1.5 Emergency Telephone:

+ 48 605 232-223 (Cellular, EC)

### SECTION 2: HAZARD(S) IDENTIFICATION

#### 2.1 Classification of the Substance:

**Globally Harmonized System of Classification and Labeling of Chemicals hazard identification:** Not a hazardous substance or preparation under GHS. According to the criteria in GHS (UN) for classifying hazardous substances, Carbon Black is not classified for any physico-chemical, toxicological or eco-toxicological endpoint.

**EU:** Not defined as a dangerous substance according to Council Directive 67/548/EEC, Regulation (EC) No 1272/2008 and its various amendments and adaptations. Does not contain any of the "Candidate List of Substances of Very High Concern" (SVHC) at levels >0.1 % as defined in the REACH legislation.

**WHMIS:** This material is not classified for any health hazards Canadian Worker Hazardous Materials Information System 2015 (WHMIS 2015) criteria. Carbon Black is classified as Combustible Dust. \*\*\*

**OSHA:** Carbon Black is not classified for any toxicological or eco-toxicological endpoint by the United States 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). As a combustible dust it is designated by OSHA as a hazardous chemical. See 2.2 Labelling and 2.3 "Hazards Not Otherwise Classified (HNOC)"

#### 2.2 Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200:

**Signal Word:** WARNING  
**Hazard statements:** May form combustible dust concentrations in air.  
**Pictogram:** None.  
**Precautionary Statements:** Keep away from all ignition sources including heat, sparks and flame.  
Prevent dust accumulations to minimize explosion hazard.  
*Control dust exposures to below applicable occupational exposure limits.\*\*\**

**2.3 Hazard Not Otherwise Classified (HNOC):** Carbon black may form an explosible dust-air mixture if dispersed. Carbon black can burn or smolder at temperatures greater than 400°C (>752°F) releasing hazardous products such as carbon monoxide (CO), carbon dioxide, and oxides of sulfur. Effective engineering practices, good housekeeping practices, and effective dust removal systems are necessary to minimize carbon black emissions and resultant build-up on horizontal and vertical surfaces. Fugitive carbon black emissions should be minimized and housekeeping practices should be instituted.\*\*\*

**Routes of Exposure:** Inhalation, Eye contact, Skin contact

**Eye Contact:** May cause mechanical irritation. Avoid contact with eyes.

**Skin Contact:** May cause mechanical irritation, soiling, and skin drying. Avoid contact with skin. No cases of sensitization in humans have been reported.

**Inhalation:** Dust may be irritating to respiratory tract. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated. See also Section 8.

**Ingestion:** Adverse health effects are not expected. See Section 11.

**Carcinogenicity:** Carbon Black is listed as an IARC (International Agency for Research on Cancer) Group 2B substance (possibly carcinogenic to humans). See also Section 11.

**Target Organ Effects:** Lungs, See Section 11

**Medical Conditions Aggravated by Exposure:** Asthma, Respiratory disorder

**Potential Environmental Effects:** None known. See Section 12.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Chemical Formula	CAS Number	EINECS / ELINCS Number	Weight, %	EU Classification
Carbon Black	C	1333-86-4	215-609-9	100	None

**Synonyms:** Furnace Black, Lamp Black

### SECTION 4: FIRST-AID MEASURES

#### 4.1 Description of necessary first-aid measures:

**Inhalation:** Take affected persons out in fresh air. Seek medical attention if symptoms persist. If necessary, restore normal breathing through standard first aid measures.

**Skin contact:** Not hazardous. Wash exposed skin for hygienic purposes with mild soap and water and use a soft wash cloth or towel. If symptoms develop, seek medical attention.

**Eye contact:** Immediately rinse eyes thoroughly with large volumes of water for 10-15 minutes keeping the eyelid open. If symptoms develop, seek medical attention.

**Ingestion** Do NOT induce vomiting. If conscious, rinse mouth with water. Never give anything by mouth to an unconscious person.

#### 4.2 Most Important Symptoms and Effects, acute and delayed:

**Inhalation:** Temporary discomfort to upper respiratory tract may occur due to mechanical irritation when exposures are well above the occupational exposure limit. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. See also Section 8.

**Acute Ingestion:** No evidence of adverse effects from available data. Low hazard for usual industrial and commercial handling.

**Acute eye:** High dust concentrations may cause mechanical irritation to eye. Low hazard for usual industrial and commercial handling.

**Acute skin:** May cause mechanical irritation, soiling, and skin drying.

**Sensitization:** No cases of sensitization in humans have been reported.

**Carcinogenicity:** IARC listed; **Group 2B (possibly carcinogenic to humans)**. Not listed as a carcinogen by NTP, ACGIH, OSHA or the European Union. See also Section 11.

#### 4.3 Indication of Immediate Medical Attention and Special Treatment Needed: Treat symptomatically.

### SECTION 5: FIRE-FIGHTING MEASURES

**5.1 Suitable Extinguishing Media:** Use foam, carbon dioxide (CO<sub>2</sub>), dry chemical or water fog. A fog spray is recommended if water is used.

DO NOT USE high pressure water stream as this may spread burning powder (burning powder will float).

**5.2 Special Hazards Arising from the Chemical:** It may not be obvious that carbon black is burning unless the material is stirred and sparks are apparent. Carbon black that has been on fire should be observed closely for at least 48 hours to ensure no smoldering material is present. Burning produces irritant fumes. The product is insoluble and floats on water. If possible, try to contain floating material. This material creates a fire hazard because it floats on water.

Products of combustion include carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and oxides of sulfur.

**5.3 Special protective equipment and precautions for fire-fighters:** Wear full protective fire fighting gear including self-contained breathing apparatus (SCBA). Wet carbon black produces very slippery walking surfaces.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1 Personal precautions, protective equipment and emergency procedures:

**CAUTION:** Wet carbon black produces slippery walking surfaces. Avoid dust formation. Ensure adequate ventilation. Use personal protective equipment and respiratory protection. See also Section 8. Eliminate all source of ignition. No smoking.

**Environmental Precautions:** Carbon black poses no significant environmental hazards. Do not allow material to contaminate ground water system. The product is insoluble and floats on water. If possible, try to contain floating material. Local authorities should be advised if significant spillages cannot be contained.

**6.2 Methods and Material for Containment and Cleaning Up:** Prevent further leakage or spillage if safe to do so. Small spills should be vacuumed when possible. Dry sweeping is not recommended. A vacuum equipped with HEPA (high efficiency particulate air) filtration is recommended. If necessary, light water spray will reduce dust for dry sweeping. Large spills may be shoveled into containers. Dispose according to valid regulations (see Section 13). If needed, to remove released product, use specialized company for disposing / transporting wastes.

## SECTION 7: HANDLING AND STORAGE

**7.1 Precautions for Safe Handling:** Avoid dust exposures above the occupational exposure limit. Use local exhaust ventilation or other appropriate engineering controls to maintain exposures below occupational exposure limit and minimize dust formation. Avoid contact with skin and eyes. If exposed, wash to avoid mechanical irritation and soiling. Keep the containers closed when not in use.

Dust may cause electrical shorts if capable of penetrating electrical equipment. Ensure equipment is tightly sealed.

If hot work (welding, torch cutting, etc.) is required the immediate work area must be cleared of carbon black product and dust.

Some grades of carbon black are sufficiently electrically non-conductive and may allow a build-up of static charge during handling. Take measures to prevent the build up of electrostatic charge, such as ensuring all equipment is electrically grounded/earthed.

General hygiene considerations: Handle in accordance with good industrial hygiene and safety practices.

**7.2 Conditions for Safe Storage, including any incompatibilities:** *CAUTION:* Some carbon black grades may have significant amounts of carbon monoxide on the particle surface. Before storing in closed areas, test for possible elevated levels of carbon monoxides and dioxides. Observe safety measures while entering closed areas.

Store in original, properly labeled and tightly closed containers in dry, ventilated place. Protect against water and moisture. Store away from sources of heat and ignition. Store separately from oxidizers.

Carbon black is not classifiable as a Division 4.2 self-heating substance under the UN test criteria. However, the UN criteria for determining if a substance is self-heating is volume dependent, i.e., the auto-ignition temperature decreases with increasing volume. This classification may not be appropriate for large volume storage containers.

Carbon black in bags should be placed on pallet or dry basis in the way not to get spread, deformed or damaged during storage. Keep distance between bags to allow circulation of air – cooling.

Carbon black can be stored in silos equipped with devices for mechanical or pneumatic translocation of carbon black.

Before entering vessels and confined spaces containing carbon black, test for adequate oxygen, flammable gases and potential toxic air contaminants. Do not allow dust to accumulate on surfaces.

*CAUTION:* Emptied, unclean containers can contain residues of carbon black and can create fire/explosion hazard.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**8.1 Control parameters:**

**Exposure Limit Values:**

Country	Occupational Exposure Limit, mg/m <sup>3</sup>
Canada	3.0 TWA (inhalable)
Malaysia	3.5 TWA
Mexico	3.5 TWA
United States	OSHA-PEL 3.5 TWA (inhalable)
	ACGIH-TLV 3.0 TWA (inhalable)
	NIOSH -REL 3.5 TWA (see Section 11)

TWA = 8-hour time-weighted-average, except as noted. MAK = Maximale Arbeitsplatz-Konzentration (maximum workplace concentration) (advisory). TRGS = Technische Regeln für Gefahrstoffe (regulatory limits). OES = occupational exposure standard. STEL = short-term exposure limit. OSHA-PEL = Occupational Safety and Health Administration - permissible exposure limit. ACGIH-TLV = American Conference of Governmental Industrial Hygienists-Threshold Limit Value. NIOSH-REL = National Institute of Occupational Safety and Health - recommended exposure limit.

**8.2 Appropriate Engineering Controls:** Use process enclosures and/or exhaust ventilation to keep airborne dust concentrations below the occupational exposure limit.

**8.3 Individual protection measures, such as Personal Protective Equipment (PPE):**

**Eye/Face Protection:** Wear eye/face protection. Safety glasses with side-shields. Goggles.

**Skin Protection:** Wear general protective clothing to minimize skin contact. Work clothes should NOT be taken home and should be washed daily.

**Hand Protection:** Wash hands and other exposed skin with mild soap. Use of a barrier cream may help to prevent skin drying. Use of protective gloves is recommended to avoid hand contamination.

**Respiratory Protection:** An approved air-purifying respirator (APR) for particulates may be permissible where airborne concentrations are expected to exceed occupational exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air supplied respirator if there is any potential for uncontrolled release, exposure levels are not known, or any circumstances where air-purifying respirators may not provide adequate protection. Use of

respirators must include a complete respiratory protection program in accordance with national standards and current best practices.

The following agencies/organizations approve respirators and/or criteria for respirator programs:

**US:** NIOSH approval under 42 CFR 84 required. OSHA (29 CFR 1910.134). ANSI Z88.2-1992 (Respiratory Protection).

**EU:** CR592 Guidelines for the Selection and Use of Respiratory Protection. Germany: DIN/EN 143 Respiratory Protective Devices for Dusty Materials.

**UK:** BS 4275 Recommendations for the Selection, Use and Maintenance of Respiratory Protective Equipment. HSE Guidance Note HS (G) 53 Respiratory Protective Equipment.

**Hygiene Considerations:** Emergency eyewash and safety shower should be in close proximity. Wash hands and face thoroughly with mild soap before eating and drinking.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on Basic Physical and Chemical Properties:

<b>Appearance:</b>		powder or pellet
<b>Color:</b>		black
<b>Odor:</b>		odorless
<b>pH value:</b>		6 - 10 [50 g/l water, 20 °C], ASTM D1512
<b>Melting point/range:</b>		not applicable
<b>Boiling point/range:</b>		not applicable
<b>Flash point:</b>		not applicable
<b>Evaporation rate:</b>		not applicable
<b>Flammability Classification</b> (as defined by OSHA 1910.1200):		not applicable
<b>Explosive Properties:</b>		Dust may form explosible mixture in air
Explosive Limits (dust): (VDI 2263)	Lower:	50 g/m <sup>3</sup>
	Upper:	not determined
Dust Explosion Class (VDI 2263, EC 84/449)		ST 1
Maximum Absolute Explosion Pressure		10 bar
Maximum Rate of Pressure Rise <sup>1</sup>		30-100 bar m/s
<b>Vapor pressure:</b>		not applicable
<b>Vapor density:</b>		not applicable
<b>Relative density: (20 °C)</b>		1.7 – 1.9 g/ml (water = 1)
<b>Solubility (in Water):</b>		insoluble
<b>Partition coefficient (n-octanol/water):</b>		not applicable
<b>Auto-ignition temperature</b> (transport, IMDG Code)		>140 °C
<b>Decomposition temperature:</b>		300 °C
<b>Viscosity:</b>		not applicable
<b>Oxidising Properties:</b>		not applicable
<b>Flammable and Explosive Properties</b>		
Minimum Ignition Temperature (VDI 2263)		
Furnace Black, Method: BAM Furnace		>500 °C
Furnace Black, Godberg-Greenwald Furnace		>315 °C
Minimum Ignition Energy		>10 J
Burn Rate (VDI 2263, EC 84/449)		>45 seconds
(not classifiable as “Highly Flammable”, or “Easily Ignitable”)		
Ignition Energy (VDI 2263):		>1 kJ

### 9.2 Other Information:

<b>Bulk density:</b>	300-450 kg/m <sup>3</sup>
<b>% Volatile (by Weight):</b>	< 2.5 % @ 950 °C

## SECTION 10: STABILITY AND REACTIVITY

10.1 **Reactivity:** May react exothermically with strong oxidizers.

10.2 **Chemical Stability:** Stable under normal ambient conditions of use and storage. *Not sensitive to mechanical impact. Dust may form explosible mixture in air. Avoid dust formation. Do not create a dust cloud. Take precautionary measures against static discharges. Ensure all equipment is earthed/grounded before beginning transfer operation.\*\*\**

10.3 **Possibility of Hazardous Reaction:** Dangerous polymerization will not occur.

10.4 **Conditions to Avoid:** Prevent exposure to high temperatures >300 °C and open flames.

10.5 **Incompatible Materials:** Strong oxidizers such as chlorates, bromates and nitrates – may react exothermically.

10.6 **Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide, organic products of decomposition, oxides of sulfur (sulfoxides) form if heated above decomposition temperature.

## SECTION 11: TOXICOLOGICAL INFORMATION

**11.1 Information on Toxicological Effects:****Acute toxicity:**

Acute oral toxicity: LD50 (rat), > 8000 mg/kg. (Equivalent to OECD TG 401).

Primary skin irritation rabbit: non-irritative, index score 0.6/8

Primary eye irritation rabbit: non-irritative, Draize score 10-17/110 @ 24 h.

**Subchronic toxicity:**

Rat, inhalation, duration 90 days, NOAEL = 1.0 mg/m<sup>3</sup> (respirable)

Target organ: lungs; Effect: inflammation, hyperplasia, fibrosis

**Chronic toxicity:**

Rat, oral, duration 2 years

Effect: no tumors

Mouse, oral, duration 2 years

Effect: no tumors

Mouse, dermal, duration 18 months

Effect: no skin tumors

Rat, inhalation, duration 2 years

Target organ: lungs. Effect: inflammation, fibrosis, tumors

**Note:** Tumors in the rat lung are considered to be related to the "particle overload phenomenon" rather than to a specific chemical effect of carbon black itself in the lung. These effects in rats have been reported in many studies on other inorganic insoluble particles and appear to be rat specific. Tumors have not been observed in other species (i.e., mouse and hamster) for carbon black or other insoluble particles under similar circumstances and study conditions.

**Carcinogenicity:** In 2006 IARC re-affirmed its 1996 classification of carbon black as, **Group 2B (possibly carcinogenic to humans)**.

In 1995 IARC concluded, "There is inadequate evidence in humans for the carcinogenicity of carbon black." Based on rat inhalation studies IARC concluded that there is, sufficient evidence in experimental animals for the carcinogenicity of carbon black," IARC's overall evaluation in 1995 was that, "Carbon black is possibly carcinogenic to humans (Group 2B)". This conclusion was based on IARC's guidelines which require such a classification if one species exhibits carcinogenicity in two or more studies (IARC, 2010).

Solvent extracts of carbon black were used in one study of rats in which skin tumors were found after dermal application and several studies of mice in which sarcomas were found following subcutaneous injection. IARC concluded that there was "sufficient evidence" that carbon black extracts can cause cancer in animals (Group 2B).

Carbon black is not designated as carcinogen by the U.S. National Toxicology Program (NTP), the U.S. Occupational Safety and Health Administration (OSHA) or the European Union (EU).

The U.S. National Institute of Occupational Safety and Health (NIOSH) 1978 criteria document on carbon black recommends that only carbon blacks with PAH levels greater than 0.1% require the measurement of PAHs in air. As some PAHs are possible human carcinogens, NIOSH recommends an exposure limit of 0.1 mg/m<sup>3</sup> for PAHs in air, measured as the cyclohexane-extractable fraction.

The American Conference of Governmental Industrial Hygienists (ACGIH) confirmed carbon black as Animal Carcinogen with Unknown Relevance to Humans (Category A3 Carcinogen).

Applying the guidelines of self-classification under the Globally Harmonized System of Classification and Labeling of Chemicals, carbon black is not classified as a carcinogen. Lung tumors are induced in rats as a result of repeated exposure to inert, poorly soluble particles like carbon black and other poorly soluble particles. Rat tumors are a result of a secondary non-genotoxic mechanism associated with the phenomenon of lung overload. This is a species-specific mechanism that has questionable relevance for classification in humans. In support of this opinion, the CLP Guidance for Specific Target Organ Toxicity– Repeated Exposure (STOT-RE), cites lung overload under mechanisms not relevant to humans. Human health studies show that exposure to carbon black does not increase the risk of carcinogenicity.

**Sensitization:** Guinea pig skin (Buehler Test): Not sensitizing (OECD TG 406). Assessment: Not sensitizing in animals. No cases of sensitization in humans have been reported.

**Germ Cell Mutagenicity:**

*In Vitro:* Carbon black is not suitable to be tested in bacterial (Ames test) and other in vitro systems because of its insolubility. However, when organic solvent extracts of carbon black have been tested, results showed no mutagenic effects. Organic solvent extracts of carbon black can contain traces of polycyclic aromatic hydrocarbons (PAHs). A study to examine the bioavailability of these PAHs showed that PAHs are very tightly bound to carbon black and not bioavailable (Borm, 2005).

*In Vivo:* In an experimental investigation, mutational changes in the hprt gene were reported in alveolar epithelial cells in the rat following inhalation exposure to carbon black. This observation is believed to be rat specific and a consequence of "lung overload" (Driscoll, 1997) which led to chronic inflammation and release of reactive oxygen species. This is considered to be a secondary genotoxic effect and, thus, carbon black itself would not be considered to be mutagenic.

Assessment: In vivo mutagenicity in rats occurs by mechanisms secondary to a threshold effect and is a consequence of "lung overload", which leads to chronic inflammation and the release of genotoxic oxygen species. This mechanism is considered to be a secondary genotoxic effect and, thus, carbon black itself would not be considered to be mutagenic

**Reproductive and developmental toxicity:** *No effects on reproductive organs or fetal development have been reported in long-term repeated dose toxicity studies in animals.\*\*\**

**Specific target organ toxicity – single exposure (STOT-SE):** *Based on available data, specific target organ toxicity is not expected after single oral, single inhalation, or single dermal exposure.\*\*\**

**Specific target organ toxicity – repeated exposure (STOT-RE):** Animal toxicity: Repeated dose toxicity: inhalation (rat), 90 days, No Observed Adverse Effect Concentration (NOAEC) = 1.1 mg/m<sup>3</sup> (respirable). Target organ/effects at higher doses are lung inflammation, hyperplasia, and fibrosis. Repeated dose toxicity: oral (mouse), 2 yrs, No Observed Effect Level (NOEL) = 137 mg/kg (body wt.). Repeated dose toxicity: oral (rat), 2 yrs, NOEL = 52 mg/kg (body wt.).\*\*\*  
Although carbon black produces pulmonary irritation, cellular proliferation, fibrosis, and lung tumors in the rat under conditions of lung overload, there is evidence to demonstrate that this response is principally a species-specific response that is not relevant to humans.\*\*\*

**Epidemiology:** Results of epidemiological studies of carbon black production workers suggest that cumulative exposure to carbon black may result in small decrements in lung function, as measured by FEV1. A recent U.S. respiratory morbidity study suggested a 27 ml decline in FEV1 from a 1 mg/m<sup>3</sup> (inhalable fraction) exposure over a 40-year period. An older European investigation suggested an exposure to 1 mg/m<sup>3</sup> (inhalable fraction) of carbon black over a 40-year working-lifetime will result in a 48 ml decline in FEV1. In contrast, normal age related decline over a similar period of time would be approximately 1200 ml.

The relationship between symptoms and exposure to carbon black is less clear. In the U.S. study, 9% of the highest exposure group (in contrast to 5% of the unexposed group) reported symptoms consistent with chronic bronchitis. In the European study, methodological limitations in the administration of the questionnaire limit the drawing of definitive conclusions about symptoms. This study, however, indicated a link between carbon black and small opacities on chest films, with negligible effects on lung function.

A study of carbon black workers in the UK showed an elevated incidence of lung cancer but it was not considered to be related to carbon black exposure. A study of workers at a large German carbon black manufacturing facility found increased lung cancer mortality among German carbon black workers, but found no apparent dose-response relationship between lung cancer mortality and several indicators of occupational exposure, including years of employment and carbon black exposure. The study concluded that the high lung cancer mortality could not be fully explained by selection, smoking, or other occupational risk factors, but the results also provided little evidence for an effect from carbon black exposure. A recent mortality study of US carbon black workers found no association between employment in carbon black production and lung cancer or any other type of cancer.

Assessment:

**Inhalation** - Applying the guidelines of self-classification under GHS, carbon black is not classified under STOT-RE for effects on the lung. Classification is not warranted on the basis of the unique response of rats resulting from “lung overload” following exposure to poorly soluble particles such as carbon black. The pattern of pulmonary effects in the rat, such as inflammation and fibrotic responses, are not observed in other rodent species, non-human primates, or humans under similar exposure conditions. Lung overload does not appear to be relevant for human health. Overall, the epidemiological evidence from well-conducted investigations has shown no causative link between carbon black exposure and the risk of non-malignant respiratory disease in humans. A STOT-RE classification for carbon black after repeated inhalation exposure is not warranted.\*\*\*

**Oral:** Based on available data, specific target organ toxicity is not expected after repeated oral exposure.\*\*\*

**Dermal:** Based on available data and the chemical-physical properties (insolubility, low absorption potential), specific target organ toxicity is not expected after repeated dermal exposure.\*\*\*

**Aspiration hazard:** Based on industrial experience and the available data, no aspiration hazard is expected.\*\*\*

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 Ecotoxicity:

Acute fish toxicity: LC50 (96 h) > 1000mg/l, Species: <i>Brachydanio rerio</i> (zebrafish)	Method: OECD Guideline 203
Acute invertebrate toxicity EC50 (24 h) > 5600 mg/l. Species: <i>Daphnia magna</i> (waterflea)	Method: OECD Guideline 202
Acute algae toxicity: EC50 (72 h) >10,000 mg/l, NOEC 50 >10,000 mg/l Species: <i>Scenedesmus subspicatus</i>	Method: OECD Guideline 201
Activated sludge: EC0 (3 h) >= 400 mg/l, EC10 (3 h): ca. 800 mg/l	Method: DEV L3 (TTC test)

**12.2 Persistence and degradability:** Not soluble in water. Expected to remain on soil surface. Not expected to degrade.

**12.3 Bioaccumulative Potential:** Bioaccumulation is not expected due to physicochemical properties of the substance.

**12.4 Mobility in Soil:** Not soluble in water. Expected to remain on soil surface.

**12.5 Other adverse effects:** No information available.

## SECTION 13: DISPOSAL CONSIDERATIONS

**13.1 Waste Treatment Methods:** Product can be burned in suitable incineration plants or disposed of in a suitable landfill in accordance with the regulations issued by the appropriate federal, provincial, state and local authorities.

**U.S.:** Not a hazardous waste under U.S. RCRA, 40 CFR 261.

**Canada:** Not a hazardous waste under provincial regulations.

**Container/Packaging:** Return reusable containers to manufacturer or recycle. Packaging to be recycled only if emptied completely. Dispose of in accordance with national and local waste regulations. Use only authorized companies.

### SECTION 14: TRANSPORT INFORMATION

- 14.1 **UN Number:** None
- 14.2 **UN Proper Shipping Name:** Not classified
- 14.3 **Transport Hazard Class:** Not classified
- 14.4 **Packing Group:** Not classified
- 14.5 **Environmental Hazards:** No significant environmental hazards are associated with carbon black release to the environment. Carbon black is not soluble in water. See also Section 12.
- 14.6 **Special precautions for user:**  
The following organizations do not classify carbon black as a "hazardous cargo" if it is "carbon, non-activated, mineral origin". *Carbon blacks of JSC «YATU named after V. U. Orlov» meet this definition.\*\**  
Canadian Transport of Dangerous Goods (TDG); European Carriage of Dangerous Goods by Rail (RID), by Road (ADR), or on the Rhine (ADNR); International Air Transport Association (IATA); International Civil Air Organization-Technical Instructions (ICAO-TI); International Maritime Dangerous Goods Code (IMDG); United Nations Recommendations on the Transport of Dangerous Goods; United States Department of Transportation Hazardous Materials Regulations (DOT)
- International Transportation Identification:** "Carbon black, non-activated, mineral origin".
- No hazardous material of Division 4.2. Seven (7) ASTM reference carbon blacks were tested according to the UN method, Self Heating Solids, and found to be "Not a self-heating substance of Division 4.2"; the same carbon blacks were tested according to the UN method, Readily Combustible Solids, and found to be "Not a readily combustible solid of Division 4.1"; under current UN Recommendations on the Transport of Dangerous Goods.
- 14.7 **Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code:** Not applicable for product as supplied.

### SECTION 15: REGULATORY INFORMATION

#### 15.1 Safety, Health and Environmental Regulation Specific for the Product in Question

##### **Hazard Classification:**

USA: OSHA (29 CFR 1910.1200): Hazardous\*\*\*  
Mexico: NOM-018-STPS-2000: Not hazardous\*\*\*  
Canada: WHMIS 2015: Hazardous\*\*\*

##### **International Inventory Status:** Carbon Black (CAS 1333-86-4) is listed on or exempt from the following inventories:

EU: EINECS (European Inventory of Existing Commercial Chemical Substances), RN: 215-609-9.  
Australia: AICS (Australian Inventory of Chemical Substances)  
Canada: CEPA (Canadian Environmental Protection Act), domestic substance list (DSL)  
China: Inventory of Existing Chemical Substances  
Japan: METI (Ministry of Economy, Trade and Industry) List of Existing Chemicals Substances, No 10-3074/5-3328  
Korea: TCC-ECL (Toxic Chemical Control Law Existing Chemical List), KE-0488  
New Zealand: HSNO (New Zealand Hazardous Substances and New Organisms Act), HSR002801  
Philippines: Philippine Inventory of Chemicals and Chemical Substances (PICCS)  
United States: United States Toxic Substances Control Act (TSCA)

##### **Canada:** Workplace Hazardous Material Information System (WHMIS), Classification Combustible Dust

Statement of Equivalence: "This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and MSDS contains all the information required by the Controlled Products Regulations."

Ingredients Disclosure List: Contains carbon black. See Section 2.

##### **United States:** Carbon black is on the Chemical Hazard Information Profile (CHIP) list under TSCA.

Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 Toxic Substances: Does not contain any components subject to this section.

##### SARA 311/312 Hazard Categories:

Acute Health Hazard	NO	Chronic Health Hazard	YES
Fire hazard	YES	Sudden release of pressure hazard	NO
Reactive Hazard	NO		

Toxic Release Inventory (TRI): Under EPA's TRI program the reporting threshold for 21 Polycyclic Aromatic Compounds (PACs) has been lowered to 100 pounds per year manufactured, processed, or otherwise used. (64 CFR 58666, Oct. 29, 1999) The 100 pounds/yr applies to the cumulative total of 21 specific PACs. Carbon black may contain certain of these PACs and the user is advised to evaluate their own TRI reporting responsibilities.

This product does not contain any components listed as a Hazardous Air Pollutant, Flammable Substance, Toxic Substance, or Class 1 or 2 Ozone Depletor. This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

California Safe Drinking Water and Toxics Enforcement Act of 1986 (Proposition 65): "Carbon black (airborne, unbound particles of respirable size)" is a California Proposition 65 listed substance. Certain polycyclic aromatic hydrocarbons (PAHs) that may be found adsorbed onto the surface of carbon black are California Proposition 65 listed substances. "Carbon-black extracts" is a California Proposition 65 listed substance. Certain metals, including arsenic, cadmium, lead, mercury, or nickel, may be present on and/or in carbon black and are California Proposition 65 listed substances.

**United States Food Contact Regulations:** Carbon black is permitted for indirect contact with food and drugs when used as filler in rubber articles intended for repeat use under 21 CFR (Code of Federal Regulations) 177.2600.

LIMITATIONS: Total carbon black (channel process and furnace process) in the rubber may not exceed 50% by weight of the rubber products. Furnace process black content may not exceed 10% by weight of rubber product intended for use in contact with milk or edible oils. *Carbon blacks of JSC «YATU named after V. U. Orlov» are furnace process blacks.\*\**

## SECTION 16: OTHER INFORMATION

**16.1 Polycyclic Aromatic Hydrocarbon (PAH) Content:** Manufactured carbon blacks generally contain less than 1000 ppm of solvent extractable PAH. Solvent extractable PAH content depends on numerous factors including, but not limited to, the manufacturing process, desired product specifications, and the analytical procedure used to measure and identify solvent extractable materials.

There are no known human carcinogenic effects related to the PAH content of carbon blacks. Recent research has shown that the PAH content of carbon blacks is not released in biological fluids and thus not available for biological activity.

**16.2 Heavy Metals and Metalloids Content:** This product is in compliance with the requirements listed in EU-Directives 94/62/EC and 2000/53/EC and also EN 71/3 concerning content of Heavy Metals and Metalloids.

**16.3 Organic and Inorganic Impurities and Products of Animal:** These chemicals are not involved in our production and handling processes and they are not expected to be present in our carbon blacks in concentration above low ppm or less and therefore below the levels of concern.

**16.4 National Fire Protection Association (NFPA) Rating:**

Health: 1

Flammability: 1

Reactivity: 0

0 = minimal, 1 = slight, 2 = moderate, 3 = serious, 4 = severe

**16.5 Hazardous Materials Identification System® (HMIS®) Rating:**

Health: 1 (designates chronic hazard)

Flammability: 1

Physical Hazard: 0

0 = minimal, 1 = slight, 2 = moderate, 3 = serious, 4 = severe

HMIS® is a registered trademark of the National Paint and Coatings Association

**16.6 Reason for revision:** Added information about importers in clause 16.8, updated the content of clauses 2.1, 2.2, 2.3, 10.2, 11.1 and 15.1. Changes made since the release of the latest version are highlighted in italics and \*\*\* characters at the end of the paragraph.

**Previous Revision:** Rev. 1.2 - March 20, 2018.

**Prepared by:** QMB & HSE Departments of JSC «YATU named after V. U. Orlov».

**Approved by:** Production and Quality Director of JSC «YATU named after V. U. Orlov».

**16.7 Actual version of Safety Data Sheet is on company's web site:** [www.yatu.ru/sds/](http://www.yatu.ru/sds/)

**16.8 Information about Importers:** *The importer's name, U.S. address, and U.S. emergency telephone number is specified on the goods label.\*\*\**

**16.9 Main Data Sources:**

- IUCLID International Uniform Chemical Information Database. Existing Chemicals – 2000.
- IUPAC Recommendations, 1995 (Recommended terminology for the description of carbon as a solid, p.479).
- IARC Monographs on the evaluation of carcinogenic risks to humans. –France, IARC, 2010.-V.93.-p. 43-192.
- NIOSH: Criteria for a recommended Standard – Occupational Exposure to Carbon Black; DHHS/NIOSH Pub. No. 78-204; Cincinnati, OH, 1978.
- Proposition 65 List of Chemicals. – State California, 2007.
- UN: Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision 5 (2013).
- American Conference of Governmental Industrial Hygienists, Committee on Industrial Ventilation: Industrial Ventilation, A Manual of Recommended Practice, 24th edition; ACGIH, Cincinnati, OH, 2001.
- American Conference of Governmental Industrial Hygienists: Threshold Limit Values and Biological Exposure Indices for 2003; ACGIH, Cincinnati, OH, 2003.
- American National Standards Institute: American National Standard for Respiratory Protection; ANSI Z88.2-1992, New York, NY, 1992.
- Crosbie, W.: Respiratory Survey on Carbon Black Workers in the U.K. and the U.S.; Archives of Environmental Health, 41:346-53, 1986.
- Donnet, J., R. Bausal, and M. Wang (eds.): Carbon Black, Science &Technology, 2nd edition; Marcel-Dekker, New York, NY, 1993.
- Gardiner, K., N. Trethowan, J. Harrington, C. Rossiter, and I. Calvert: Respiratory Health Effects of Carbon Black: A Survey of European Carbon Black Workers; British Journal of Industrial Medicine, 50:1082-1096, 1993.
- Gardiner, K.: Effects on Respiratory Morbidity of Occupational Exposure to Carbon Black: A Review; Archives of Environmental Health, 50:(1) 44-59, 1995.
- Sorahan T, Harrington JM (2007) A “Lugged” Analysis of Lung Cancer Risks in UK Carbon Black Production Workers, 1951–2004. Am. J. Ind. Med. 50, 555–564

### Disclaimer

The information set forth above is based on information, which believes to be accurate. No warranty, expressed or implied is intended. The information is provided solely for your information and no legal responsibility for its use or reliance thereon. This SDS complies with basic US regulatory requirements for SDS on the date of publication. This document should not be relied upon for compliance with the laws and regulations of individual countries without the appropriate local translations and adaptations. Information contained in this SDS apply only to indicated product and cannot be transferred to similar products. Data in this SDS should be treated as help for safety in transport, distribution, use and storage. User is responsible for inappropriate use of the information contained in this SDS. SDS isn't the quality certificate for the product.