**Safety Data Sheet**

**SDS20213001**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 1: Chemical Product and Company Identification

* 1. **Product identifier**

Product: Certified Reference Material BAM-P109 (nanoporous carbon)

**1.2 Other means of identification**

Synonyms: CRM BAM-P109; SDS20213001; porous, amorphous, activated charcoal pellets, carbon material for vapor study (CM-VS),

**1.3 Recommended use of the chemical and restrictions on use**

Recommended uses: Research and development

Restricted Uses: Abrasive blasting, cutting, grinding, polishing or crushing of materials, conveying, sifting/screening dry materials, and any other use capable of generating fine dust clouds.

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

**a. Manufacturer**

Bundesanstalt für Materialforschung und -prüfung (BAM)

Unter den Eichen 87

12200 Berlin, Germany

Telephone: +49 30 8104-1133

FAX: +49 30 8104-71133

E-mail: franziska.emmerling@bam.de

Internet: www.bam.de

**b. Supplier**

National Institute of Standards and Technology

100 Bureau Drive, Stop 1730

Gaithersburg, MD 20899

United States of America

E-mail: nistsds@nist.gov

Phone: (301) 975-5375, Option 3

**1.5 Emergency telephone number:**

ChemTrec: 1-703-527-3887 (International) or 1-800-424-9300 (North America)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 2: Hazard Identification

**2.1 Classification of the substance or mixture in accordance with** **the OSHA Hazard Communication Standard (29 CFR 1910.1200).**

Health hazards: Not classified.

Physical hazards: Not classified.

**2.2 Label elements in accordance with 29 CFR 1910.1200**

Symbol(s): None. Not a hazardous substance or mixture.

Signal Word: None. Not a hazardous substance or mixture.

Hazard Statements: None. Not a hazardous substance or mixture.

Precautionary Statements: None. Not a hazardous substance or mixture.

**2.3 Hazards not otherwise classified (HNOC)**

None. Not a hazardous substance or mixture.

**2.4 % of the mixture consists of ingredient(s) of unknown acute toxicity.**

None. Not a hazardous substance or mixture.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 3: Composition / Information on Ingredients

**3.1 Product Composition:**

|  |  |  |  |
| --- | --- | --- | --- |
| Chemical Name | CAS Registry Number | Common Names/Synonyms | Concentration (w/v %) |
| carbon | 7440-44-0 | porous, amorphous, activated charcoal pellets | ≥ 99.99 |

This material is a blending of five units of the BAM certified reference material P109 (Lots № 145, 227, 256, 301, and 344). These five units were blended, using a spinning riffler, into sixteen aliquots. BAM provided the material to NIST.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 4: First Aid Measures

**4.1 First aid measures based on exposure route**

**Inhalation:**

If breathing, move person into fresh air. If not breathing, give artificial respiration.

**Skin Contact:**

Wash off with soap and plenty water.

**Eye Contact:**

Flush eyes with water as a precaution.

**Ingestion:**

Never give anything by mouth to an unconscious person. Rinse mouth with water.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

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

No data available. If adverse effects are present, seek immediate medical attention.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 5: Fire Fighting Measures

**5.1 Extinguishing media**

**Suitable extinguishing media**

Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media**

No data available.

**5.2 Special hazards arising from the chemical**

No data available.

**5.3 Special protective equipment and precautions for fire-fighters**

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**5.4 Further information**

No data available.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 6: Accidental Release Measures

**6.1 Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing vapors, mist or gas. Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment; see Section 8.

**6.2 Environmental precautions**

No special environmental precautions required.

**6.3 Methods and materials for containment and cleaning up**

Sweep up and shovel. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**

For disposal see section 13.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 7: Handling and Storage

**7.1 Precautions for safe handling**

Avoid contact with eyes, skin, and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing dust. Wash thoroughly after handling. See section 2.2 for applicable precautionary statements. See Section 8 for exposure controls and personal protection.

**7.2 Conditions for safe storage, including any incompatibilities**

Keep container tightly closed. Keep container in a cool, dry, and well-ventilated area.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2, no other specific uses are stipulated.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 8: Exposure Controls and Personal Protection

**8.1 Exposure Limits**

This product contains no substances with OSHA permissible exposure limit (PEL) or American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV). See section 15 for additional information.

**8.2 Appropriate engineering controls**

General industrial hygiene practice.

**8.3 Individual protection measures, such as personal protective equipment**

The use of eye protection in the form of safety glasses with side shields and the use of skin protection for hands in the form of gloves are considered minimum and non-discretionary in workplaces and laboratories. Any recommended personal protection equipment or environmental equipment is to be considered as additional to safety glasses and gloves.

**Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as

NIOSH (US) or EN 166(EU).

**Skin protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves must satisfy the specifications of EU Directive 89/686/EEC and the Standard EN 374 derived from it.

**Body Protection**

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government Standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**

No special environmental precautions required.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 9: Physical and Chemical Properties

**9.1 Information on basic physical and chemical properties**

a) Appearance Form: Form: pellets 250 – 500 µm; Color: black

b) Odor Odorless

c) Odor Threshold No data available

d) pH 6.0 - 9 at 40 g/l at 25 °C

e) Melting point/freezing point Melting point/range: 3550 °C

f) Initial boiling point and No data available

boiling range

g) Flash point No data available

h) Evaporation rate No data available

i) Flammability (solid, gas) No data available

j) Upper/lower flammability No data available

or explosive limits

k) Vapor pressure (mmHg): <0.01 hPa at 20 °C

l) Vapor density No data available

m) Relative density Apparent (skeletal) density: 2.18 g/cm³ at 20 °C

Bulk density: 0.8 – 1.0 g/cm³ at 20 °C

n) Water solubility Insoluble

o) Partition coefficient: No data available

n-octanol/water

p) Auto-ignition temperature No data available

q) Decomposition temperature No data available

r) Viscosity No data available

s) Explosive properties No data available

t) Oxidizing properties No data available

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 10: Stability and Reactivity

**10.1 Reactivity**

No data available.

**10.2 Chemical stability**

No data available.

**10.3 Possibility of hazardous reactions**

No data available.

**10.4 Conditions to avoid**

No data available.

**10.5 Incompatible materials**

Strong oxidizing agents.

**10.6 Hazardous decomposition products**

No data available.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 11: Toxicological Information

**11.1 Exposure routes**

Dermal, Ingestion, Inhalation

**11.2 Exposure symptoms**

No data available.

**11.3 Exposure effects**

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Skin Contact: May be harmful if absorbed through skin. May cause skin irritation.

Eye Contact: May cause eye irritation.

Ingestion: May be harmful if swallowed.

**11.4 Numerical measures of toxicity**

**Acute toxicity**

Oral: No data available

Dermal:

Skin: No data available.

Eyes: No data available.

Inhalation: No data available.

**Skin corrosion/irritation**

No data available.

**Serious eye damage/eye irritation**

No data available.

**Respiratory or skin sensitization**

No data available.

**Germ cell mutagenicity**

No data available.

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as

probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a

known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a

carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

No data available.

**Specific target organ toxicity - single exposure**

No data available.

**Specific target organ toxicity - repeated exposure**

No data available.

**Aspiration hazard**

No data available.

**11.5 Carcinogenicity listing**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as

probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a

known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a

carcinogen or potential carcinogen by OSHA.

**11.6 Additional Information**

RTECS: No data available. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 12: Ecological Information

**12.1 Ecotoxicity**

No data available.

**12.2 Persistence and degradability**

No data available.

**12.3 Bioaccumulative potential**

No data available.

**12.4 Mobility in soil**

No data available.

**12.5 Results of PBT and vPvB assessment**

No data available.

**12.6 Other adverse effects**

No data available.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 13: Disposal Considerations

**13.1 Waste treatment methods**

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

**Disposal**

Dispose of contents/container in accordance with local/regional/national/international regulations.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 14: Transport Information

**DOT (US)**

Not dangerous goods.

**IMDG**

Not dangerous goods.

**IATA**

Not dangerous goods.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Section 15: Regulatory Information**

**15.1 Safety, health and environmental regulations specific for the product in question.**

No data available. This safety data sheet complies with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Section 16: Other Information**

**16.1 SDS Issue/Revision Date:** 07/07/2021

**16.2 Key or legend to abbreviations and acronyms used in the safety data sheet**

IARC = International Agency for Research on Cancer

RTECS = Registry of Toxic Effects of Chemical Substances

PBT = Persistent, Bioaccumulative and Toxic

vPvB = very Persistent and very Bioaccumulative

ADR= European Agreement concerning the International Carriage of Dangerous Goods by Road

RID = Regulation concerning the International. Carriage of Dangerous Goods by Rail

IMDG = International Maritime Code for Dangerous Goods

IATA = International Air Transport Association

**16.3 Disclaimer**

Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. Individuals receiving this information must exercise their independent judgment in determining its appropriateness for a particular purpose.