

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE OR PREPARATION AND OF THE COMPANY:

1.1 Identification of the substance or preparation

Steam activated and impregnated granular, pellet or powder activated carbon, used principally to remove organic and inorganic contaminants from gaseous and liquid media or impart special properties to the carbon.

This includes amongst others, products under the following names:- AMMONOSORB, AQUACARB AGC, ASM-TEDA, ASZM-TEDA, CENTAUR ST1, D1000, ENVIROCARB (207C 5KI, 207C 5KINA, 207C KINA, 209M, 209MC, 209MCJ, ST, ST1X), EUMC, FILTRASORB (AG5, AG40), FORMASORB, GUARDIAN, HGR, HGR-LH, HGR-P, HG PREMIUM, IVP, KI3-P, KI4-P, NUCLEARCARB (207B 1.5KI, 208C 5KI3, 207B 5TEDA, 208C 5TEDA), RESPCARB (ABEKR, BR, ER, KR, QR), SOLCARB (KS3, C3), SULFASORB, SULFUSORB, TL0408, UFR and URC.

2. COMPOSITION/INFORMATION ON INGREDIENTS:

CHEMICAL FORMULA: PREDOMINANTLY CARBON THAT HAS BEEN IMPREGNATED WITH ONE OR MORE BUT NOT ALL OF THE CONSTITUENTS DESCRIBED BELOW

Harmonised customs code: CLASSIFICATION 3802

CONSTITUENTS

| Description | CAS Number | Einecs Number | % By weight | Classification |
|-----------------------|------------|---------------|-------------|--|
| Activated Carbon | 7440-44-0 | 231 153 3 | >73 | / |
| Copper | 7440-50-8 | 231 159 6 | <12 | R 20,22-36,37,38 (X _n) |
| Zinc | 1314-13-2 | 231 175 3 | <6 | R 50,53 (N) |
| Silver | 7440-22-4 | 231 131 3 | <0.5 | / |
| TEDA | 280-57-9 | 205 999 9 | <4 | R 11-22-36,37,38 (X _i) |
| Molybdenum | 7439-98-7 | 231 107 2 | <3 | / |
| Nickel | 7440-02-0 | 231 111 4 | <8 | R 40, 43 (X _n), carc.cat.3 |
| Basic Potassium Salts | 584-08-7 | 209 529 3 | <15 | R 22-36,37,38 |
| Basic Sodium Salts | 1310-73-2 | 215 185 5 | <12 | R35 (C) |
| Sulphur | 7704-34-9 | 231 722 6 | <18 | / |
| Potassium Iodide | 7681-11-0 | 231 659 4 | <12 | / |
| Ammonium Sulphate | 7783-20-2 | 231 984 1 | <7 | / |
| Phosphoric acid | 7664-38-2 | 231 633 2 | <19 | R34 (C) |
| Sodium Bromate | 7789-38-0 | 232 160 4 | <8 | R 8-22-36,37,38 (OX _n) |

Details of relevant R phrases are given in section 16.

3. HAZARDS IDENTIFICATION:

Caution - Wet activated carbon removes oxygen from air causing severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local and national regulations.

Contact with airborne dust may be slightly irritating to eyes and respiratory tract.

A potential for ignition exists when large amounts of Centaur ST1, IVP, KINA, ST, ST1X or Sulfasorb carbon, generally greater than about 400 liters, are subjected to convective or low flows of ambient air through the carbon in a confined space without adequate heat removal.

4. FIRST AID MEASURES:

Inhalation Not applicable.

Skin contact Wash with soap and water.

Eye Contact Flush with plenty of water for at least 15 minutes.

Ingestion Not applicable

5. FIRE-FIGHTING MEASURES:

Prevention – Keep way from sources of heat, strong oxidizers or naked flames.

Suitable extinguishing media - Flood with plenty of water, water spray, CO₂, foam or dry chemical.

Special exposure hazards - Carbon monoxide and carbon dioxide maybe generated in the event of a fire.

6. ACCIDENTAL RELEASE MEASURES:

Personal precautions - See section 8, measures for personal protection.

Environmental precautions - None known.

Methods for cleaning up - Sweep up carefully and shovel into a container for disposal. Remove from the spill location. If released report in accordance with local and national regulations.

7. HANDLING AND STORAGE:

7.1 Handling

Avoid contact with skin or eyes. Avoid breathing of dust. Handle in well ventilated work space. Smoking in area should be prohibited.

7.2 Storage

Store in cool, dry, ventilated storage and in closed containers. Keep away from oxidizers, heat or flames. Store away from ignition sources.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection - Local exhaust ventilation system, or an approved particulate filter is recommended if excessive dust is generated.

Hand protection - Protective gloves recommended.

Eye protection - Safety glasses or goggles recommended.

Skin protection - Long sleeved clothing.

Hygiene measures – Keep an eye wash fountain available. Wash hands at breaks and at end of shift. Launder contaminated clothing before use.

Exposure limit values – Liberated dust has been measured in processing to be below 2mg/m³ particulate, which equates to an impregnant content significantly less than current recommended OEL's.

9. PHYSICAL AND CHEMICAL PROPERTIES:

| | |
|-----------------------------|--|
| Appearance | Particulate solid – pellet, granular or powder |
| Colour | Black |
| Odour | None |
| pH | 2 – 12 |
| Density | 0.4-0.7g/cc |
| Boiling point/boiling range | Not applicable |
| Melting point/melting range | Not applicable |
| Flash point | Not applicable |

| | |
|--|---|
| Flammability (solid, gas) | Not applicable |
| Auto flammability | Not applicable |
| Solubility | May be partially soluble in water or organic solvents |
| Partition coefficient: n-octanol/water | Not applicable |

10. STABILITY AND REACTIVITY:

Conditions to avoid – Avoid dust generation, naked flames and ignition sources.

Materials to avoid - Strong oxidizers such as ozone, liquid oxygen, chlorine and permanganate.

Hazardous decomposition products - Combustion of this material may result in the generation of carbon dioxide, carbon monoxide and nitrogen oxides.

Hazardous polymerisation - Will not occur

11. TOXICOLOGICAL INFORMATION:

Effects and hazards of eye contact - The physical nature of the product may produce eye irritation.

Effects and Hazards of skin contact - The primary skin irritation index (Rabbit) is 0 for activated carbon. The inclusion of impregnants to the activated carbon is not expected to appreciably change this value.

Effects and hazards of inhalation - The acute inhalation LC50 (RAT) is >64.4 mg/l (nominal concentration) for activated carbon. The inclusion of impregnants to the activated carbon is not expected to appreciably change this value.

Effects and hazards of ingestion - The acute oral LD50 (Rat) is >1000 mg/kg for activated carbon. The inclusion of impregnants to the activated carbon is not expected to appreciably change this value.

Chronic effects - The effects of long-term, low-level exposures to these products have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

12. ECOLOGICAL INFORMATION:

BOD/COD No information available.

13. DISPOSAL CONSIDERATIONS:

Dispose of in accordance with local and national regulations.

14. TRANSPORT INFORMATION:

Apart from the exception(s) clearly stated below, the products have been tested according to the United Nations Transport of Dangerous Goods test protocol for spontaneously combustible materials. It has been specifically determined that they are none hazardous for transportation with UN 1362, class 4.2. Proper shipping name "activated carbon".

CENTAUR ST1, ENVIROCARB ST & ST1X and IVP carbons have been tested according to the United Nations Transport of Dangerous Goods test protocol for spontaneously combustible materials. It has been specifically determined that if these products are packaged in <3m³ volume they are non hazardous for transportation with UN 1362, class 4.2. Proper shipping name "activated carbon".

15. REGULATORY INFORMATION

Apart from the exception(s) clearly stated below, these products are not classified as dangerous. (European directive 67/548/EEC and 1999/45/EC).

Labeling Information

Product name: Impregnated activated carbon.

Classification: Non Hazardous, with the following exceptions:-

| | |
|--|---------------------------|
| ASM-TEDA, ENVIROCARB (209M, 209MC), EUMC, GUARDIAN, RESPCARB B containing, SULFUSORB, UFR, URC | R36, 37, 38 (Xi). |
| ASZM-TEDA | R51, 53 (N) |
| IVP | R35 (C) |
| RESPCARB K containing | R40, 43 (X _n) |

S Phrases: S14 Keep away from oxidizers and strong acids.

S16 Keep away from sources of ignition

16. OTHER INFORMATION

This Safety Data Sheet has been written to comply with the preparation directive 1999/45/EC.

R8 Contact with combustible material may cause fire

R11 Highly flammable

R20 Harmful by inhalation.

R22 Harmful if swallowed

R34 Causes burns

R35 Causes severe burns

R36 Irritating to the eyes

R37 Irritating to the respiratory system

R38 Irritating to the skin

R40 Possible risk of irreversible effects

R43 May cause skin sensitization by skin contact

R50 Very toxic to aquatic organisms

R51 Toxic to aquatic organisms

R53 may cause long term adverse effects in the aquatic environment