



Activated Charcoal AC35

Edwards

Chemwatch: 5229-82

Version No: 4.1.1.1

Safety Data Sheet (Conforms to Regulation (EU) No 2015/830)

Issue Date: 24/04/2017

Print Date: 12/11/2018

L.REACH.GBR.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1. Product Identifier

| | |
|-------------------------------|---|
| Product name | Activated Charcoal AC35 |
| Synonyms | Items numbers: H122-05-001, H122-05-002 |
| Other means of identification | Not Available |

1.2. Relevant identified uses of the substance or mixture and uses advised against

| | |
|--------------------------|-------------------------|
| Relevant identified uses | Gas and vapour sorbent. |
| Uses advised against | Not Applicable |

1.3. Details of the supplier of the safety data sheet

| | | |
|-------------------------|---|---|
| Registered company name | Edwards | Edwards Services, s.r.o. |
| Address | Innovation Drive Burgess Hill West Sussex RH15 9TW United Kingdom | Jana Sigmunda 300, Lutín, 783 49 Czech Republic |
| Telephone | +44 8459 212223 | +420 580 582 728 |
| Fax | Not Available | Not Available |
| Website | www.edwardsvacuum.com | www.edwardsvacuum.com |
| Email | info@edwardsvacuum.com | info@edwardsvacuum.com |

1.4. Emergency telephone number

| | | |
|-----------------------------------|---------------|---------------|
| Association / Organisation | Not Available | Not Available |
| Emergency telephone numbers | Not Available | Not Available |
| Other emergency telephone numbers | Not Available | Not Available |

CHEMWATCH EMERGENCY RESPONSE

| Primary Number | Alternative Number 1 | Alternative Number 2 |
|----------------|----------------------|----------------------|
| 0808 164 9592 | +61 2 9186 1132 | +800 2436 2255 |

Once connected and if the message is not in your preferred language then please dial 01

SECTION 2 HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

| | |
|--|----------------|
| Classification according to regulation (EC) No 1272/2008 [CLP] | Not Applicable |
|--|----------------|

2.2. Label elements

| | |
|---------------------|-----------------------|
| Hazard pictogram(s) | Not Applicable |
| SIGNAL WORD | NOT APPLICABLE |

Hazard statement(s)

Not Applicable

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Continued...

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

REACH - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**3.1.Substances**

See 'Composition on ingredients' in Section 3.2

3.2.Mixtures

| 1.CAS No 2.EC No 3.Index No 4.REACH No | %[weight] | Name | Classification according to regulation (EC) No 1272/2008 [CLP] |
|--|---|--------------------------|---|
| 1.7440-44-0 2.231-153-3 3.Not Available 4.01-2119488894-16-XXXX 01-2119488716-22-XXXX | NotSpec. | <u>carbon, activated</u> | Self-Heating Material Category 2, Flammable Solid Category 2; H252, H228 ^[1] |
| Legend: | 1. Classified by Chemwatch; 2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 3. Classification drawn from C&L; * EU IOELVs available | | |

SECTION 4 FIRST AID MEASURES**4.1. Description of first aid measures**

| | |
|---------------------|---|
| Eye Contact | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. <p>For THERMAL burns:</p> <ul style="list-style-type: none"> ▶ Do NOT remove contact lens ▶ Lay victim down, on stretcher if available and pad BOTH eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye. ▶ Seek urgent medical assistance, or transport to hospital. |
| Skin Contact | <p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation. <p>In case of burns:</p> <ul style="list-style-type: none"> ▶ Immediately apply cold water to burn either by immersion or wrapping with saturated clean cloth. ▶ DO NOT remove or cut away clothing over burnt areas. DO NOT pull away clothing which has adhered to the skin as this can cause further injury. ▶ DO NOT break blister or remove solidified material. ▶ Quickly cover wound with dressing or clean cloth to help prevent infection and to ease pain. ▶ For large burns, sheets, towels or pillow slips are ideal; leave holes for eyes, nose and mouth. ▶ DO NOT apply ointments, oils, butter, etc. to a burn under any circumstances. ▶ Water may be given in small quantities if the person is conscious. ▶ Alcohol is not to be given under any circumstances. ▶ Reassure. ▶ Treat for shock by keeping the person warm and in a lying position. ▶ Seek medical aid and advise medical personnel in advance of the cause and extent of the injury and the estimated time of arrival of the patient. <p>For thermal burns:</p> <ul style="list-style-type: none"> ▶ Decontaminate area around burn. ▶ Consider the use of cold packs and topical antibiotics. <p>For first-degree burns (affecting top layer of skin)</p> <ul style="list-style-type: none"> ▶ Hold burned skin under cool (not cold) running water or immerse in cool water until pain subsides. ▶ Use compresses if running water is not available. ▶ Cover with sterile non-adhesive bandage or clean cloth. ▶ Do NOT apply butter or ointments; this may cause infection. ▶ Give over-the-counter pain relievers if pain increases or swelling, redness, fever occur. <p>For second-degree burns (affecting top two layers of skin)</p> <ul style="list-style-type: none"> ▶ Cool the burn by immerse in cold running water for 10-15 minutes. ▶ Use compresses if running water is not available. ▶ Do NOT apply ice as this may lower body temperature and cause further damage. ▶ Do NOT break blisters or apply butter or ointments; this may cause infection. ▶ Protect burn by cover loosely with sterile, nonstick bandage and secure in place with gauze or tape. <p>To prevent shock: (unless the person has a head, neck, or leg injury, or it would cause discomfort):</p> <ul style="list-style-type: none"> ▶ Lay the person flat. ▶ Elevate feet about 12 inches. ▶ Elevate burn area above heart level, if possible. ▶ Cover the person with coat or blanket. ▶ Seek medical assistance. <p>For third-degree burns</p> <p>Seek immediate medical or emergency assistance.</p> <p>In the mean time:</p> <ul style="list-style-type: none"> ▶ Protect burn area cover loosely with sterile, nonstick bandage or, for large areas, a sheet or other material that will not leave lint in wound. ▶ Separate burned toes and fingers with dry, sterile dressings. ▶ Do not soak burn in water or apply ointments or butter; this may cause infection. ▶ To prevent shock see above. ▶ For an airway burn, do not place pillow under the person's head when the person is lying down. This can close the airway. ▶ Have a person with a facial burn sit up. |

Continued...

| | |
|------------|---|
| | <ul style="list-style-type: none"> ▶ Check pulse and breathing to monitor for shock until emergency help arrives. |
| Inhalation | <ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor. ▶ If dust is inhaled, remove from contaminated area. ▶ Encourage patient to blow nose to ensure clear breathing passages. ▶ Ask patient to rinse mouth with water but to not drink water. ▶ Seek immediate medical attention. |
| Ingestion | <ul style="list-style-type: none"> ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. |

4.2 Most important symptoms and effects, both acute and delayed

See Section 11

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

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES

5.1. Extinguishing media

▶ Sand, dry powder extinguishers or other inerts should be used to smother dust fires.
At temperatures above 1500 C, carbon, graphite or graphene reacts with substances containing oxygen, including water and carbon dioxide. In case of intensely hot fires sand should be used to cover and isolate these materials.

5.2. Special hazards arising from the substrate or mixture

| | |
|----------------------|--|
| Fire Incompatibility | ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
|----------------------|--|

5.3. Advice for firefighters

| | | | | | | | | | |
|--------------------------------|--|----------------------------|---|-----------------------------|--------|--------------------------------|----------------|-------------------------------|-------------|
| Fire Fighting | <ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ Use water delivered as a fine spray to control fire and cool adjacent area. | | | | | | | | |
| Fire/Explosion Hazard | <ul style="list-style-type: none"> ▶ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions. ▶ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions). ▶ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion. <p>Combustion products include: carbon monoxide (CO) carbon dioxide (CO₂) other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes. May heat spontaneously. A fire in bulk finely divided carbon may not be obviously visible unless the material is disturbed and sparks appear. A straw broom may be useful to produce the disturbance.</p> <p style="text-align: center;">Explosion and Ignition Behaviour of Carbon Black with Air</p> <table border="1" style="width: 100%;"> <tr> <td>Lower Limit for Explosion:</td> <td>50 g/m³ (carbon black in air)</td> </tr> <tr> <td>Maximum Explosion Pressure:</td> <td>10 bar</td> </tr> <tr> <td>Maximum Rate of Pressure Rise:</td> <td>30-100 bar/sec</td> </tr> <tr> <td>Minimum Ignition Temperature:</td> <td>315 deg. C.</td> </tr> </table> | Lower Limit for Explosion: | 50 g/m ³ (carbon black in air) | Maximum Explosion Pressure: | 10 bar | Maximum Rate of Pressure Rise: | 30-100 bar/sec | Minimum Ignition Temperature: | 315 deg. C. |
| Lower Limit for Explosion: | 50 g/m ³ (carbon black in air) | | | | | | | | |
| Maximum Explosion Pressure: | 10 bar | | | | | | | | |
| Maximum Rate of Pressure Rise: | 30-100 bar/sec | | | | | | | | |
| Minimum Ignition Temperature: | 315 deg. C. | | | | | | | | |

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

| | |
|--------------|--|
| Minor Spills | <ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately. ▶ Avoid contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment. |
|--------------|--|

| | |
|---------------------|--|
| Major Spills | <p>Moderate hazard.</p> <ul style="list-style-type: none"> ▶ CAUTION: Advise personnel in area. ▶ Alert Emergency Services and tell them location and nature of hazard. ▶ Control personal contact by wearing protective clothing. |
|---------------------|--|

6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

| | |
|--------------------------------------|---|
| Safe handling | <p>NOTE:</p> <ul style="list-style-type: none"> ▶ Wet, activated carbon removes oxygen from the air thus producing a severe hazard to workers inside carbon vessels and in enclosed or confined spaces where activated carbons might accumulate. ▶ Before entry to such areas, sampling and test procedures for low oxygen levels should be undertaken; control conditions should be established to ensure the availability of adequate oxygen supply. ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps. ▶ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions) ▶ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame. ▶ Establish good housekeeping practices. ▶ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. |
| Fire and explosion protection | See section 5 |
| Other information | <p>Carbon and charcoal may be stabilised for storage and transport, without moistening, by treatment with hot air at 50 deg. C.. Use of oxygen-impermeable bags to limit oxygen and moisture uptake has been proposed. Surface contamination with oxygenated volatiles may generate a heat of reaction (spontaneous heating).</p> <ul style="list-style-type: none"> ▶ Store under an inert gas, e.g. argon or nitrogen. ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ Store in a cool, dry area protected from environmental extremes. ▶ Store away from incompatible materials and foodstuff containers. |

7.2. Conditions for safe storage, including any incompatibilities

| | |
|--------------------------------|---|
| Suitable container | <ul style="list-style-type: none"> ▶ Polyethylene or polypropylene container. ▶ Check all containers are clearly labelled and free from leaks. |
| Storage incompatibility | <ul style="list-style-type: none"> ▶ Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous <p>For carbon powders:</p> <ul style="list-style-type: none"> ▶ Avoid oxidising agents, reducing agents. ▶ Reaction with finely divided metals, bromates, chlorates, chloramine monoxide, dichlorine oxide, iodates, metal nitrates, oxygen difluoride, peroxyformic acid, peroxyfuroic acid and trioxigen difluoride may result in an exotherm with ignition or explosion. Less active forms of carbon will ignite or explode on suitably intimate contact with oxygen, oxides, peroxides, oxosalts, halogens, interhalogens and other oxidising species. ▶ Explosive reaction with ammonium nitrate, ammonium perchlorate, calcium hypochlorite and iodine pentoxide may occur following heating. ▶ Activated carbon, when exposed to air, represents a potential fire hazard due to a high surface area and adsorptive capacity. Freshly prepared material may ignite spontaneously in the presence of air especially at high humidity. Spontaneous combustion in air may occur at 90-100 deg. C. The presence of moisture in air facilitates the ignition. |

7.3. Specific end use(s)

See section 1.2

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

DERIVED NO EFFECT LEVEL (DNEL)

Not Available

PREDICTED NO EFFECT LEVEL (PNEC)

Not Available

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

| Source | Ingredient | Material name | TWA | STEL | Peak | Notes |
|-------------------------------------|-------------------|--------------------------|----------|---------------|---------------|---------------|
| UK Workplace Exposure Limits (WELs) | carbon, activated | Graphite: respirable | 4 mg/m3 | Not Available | Not Available | Not Available |
| UK Workplace Exposure Limits (WELs) | carbon, activated | Graphite: inhalable dust | 10 mg/m3 | Not Available | Not Available | Not Available |


EMERGENCY LIMITS

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|-------------------|-------------------------------|---------|----------|----------|
| carbon, activated | Carbon; (Graphite, synthetic) | 6 mg/m3 | 16 mg/m3 | 95 mg/m3 |

| Ingredient | Original IDLH | Revised IDLH |
|-------------------|---------------|---------------|
| carbon, activated | Not Available | Not Available |

MATERIAL DATA

8.2. Exposure controls

| | |
|--|--|
| 8.2.1. Appropriate engineering controls | <p>Exhaust ventilation should be designed to prevent accumulation and recirculation in the workplace and safely remove carbon black from the air. Note: Wet, activated carbon removes oxygen from the air and thus presents a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such areas sampling and test procedures for low oxygen levels should be undertaken and control conditions set up to ensure ample oxygen availability.[Linde] Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.</p> |
| 8.2.2. Personal protection |  |
| Eye and face protection | <ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. |
| Skin protection | See Hand protection below |
| Hands/feet protection | <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Personal hygiene is a key element of effective hand care. Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.</p> <ul style="list-style-type: none"> ▶ polychloroprene. ▶ nitrile rubber. ▶ butyl rubber. |
| Body protection | See Other protection below |
| Other protection | <ul style="list-style-type: none"> ▶ Overalls. ▶ P.V.C. apron. ▶ Barrier cream. |

Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|------------------------------------|----------------------|----------------------|------------------------|
| up to 10 x ES | P1 Air-line* | - - | PAPR-P1 - |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- ▶ Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- ▶ The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- ▶ Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- ▶ Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- ▶ Use approved positive flow mask if significant quantities of dust becomes airborne.
- ▶ Try to avoid creating dust conditions.

8.2.3. Environmental exposure controls

See section 12

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| | | | |
|------------------------|---|--|---------------|
| Appearance | Black solid with a characteristic odour; does not mix with water. | | |
| Physical state | Divided Solid | Relative density (Water = 1) | 350-780 g/l |
| Odour | Not Available | Partition coefficient n-octanol / water | Not Available |
| Odour threshold | Not Available | Auto-ignition temperature (°C) | Not Available |

Continued...

| | | | |
|--|----------------|----------------------------------|----------------|
| pH (as supplied) | Not Applicable | Decomposition temperature | Not Available |
| Melting point / freezing point (°C) | Not Available | Viscosity (cSt) | Not Applicable |
| Initial boiling point and boiling range (°C) | Not Available | Molecular weight (g/mol) | Not Applicable |
| Flash point (°C) | Not Available | Taste | Not Available |
| Evaporation rate | Not Available | Explosive properties | Not Available |
| Flammability | Not Available | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | Not Applicable | Surface Tension (dyn/cm or mN/m) | Not Applicable |
| Lower Explosive Limit (%) | Not Applicable | Volatile Component (%vol) | Negligible |
| Vapour pressure (kPa) | Not Applicable | Gas group | Not Available |
| Solubility in water (g/L) | Immiscible | pH as a solution (1%) | 6-10 |
| Vapour density (Air = 1) | Not Applicable | VOC g/L | Not Available |

9.2. Other information

Not Available

SECTION 10 STABILITY AND REACTIVITY

| | |
|--|--|
| 10.1. Reactivity | See section 7.2 |
| 10.2. Chemical stability | <ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur. |
| 10.3. Possibility of hazardous reactions | See section 7.2 |
| 10.4. Conditions to avoid | See section 7.2 |
| 10.5. Incompatible materials | See section 7.2 |
| 10.6. Hazardous decomposition products | See section 5.3 |

SECTION 11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

| | |
|--------------|---|
| Inhaled | <p>Limited evidence or practical experience suggests that the material may produce irritation of the respiratory system, in a significant number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.</p> <p>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.</p> <p>Although carbon itself has no toxic action, associated impurities may be toxic. Iodine is often found as an impurity and air-borne carbon dusts, as a result, may produce irritation of the mucous membranes, the eyes, and skin. Symptoms of exposure may include coughing, irritation of the nose and throat and burning of the eyes.</p> <p>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.</p> |
| Ingestion | <p>Considered an unlikely route of entry in commercial/industrial environments</p> <p>Ingestion may result in nausea, abdominal irritation, pain and vomiting</p> <p>Ingestion of finely divided carbon may produce gagging and constipation. Aspiration does not appear to be a concern as the material is generally regarded as inert and is often used as a food additive. Ingestion may produce a black stool.</p> |
| Skin Contact | <p>The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p> |
| Eye | <p>Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.</p> <p>Symptoms of exposure by the eye to carbon particulates include irritation and a burning sensation. Following an industrial explosion, fine particles become embedded in the cornea and conjunctiva resulting in an inflammation which persisted for 2-3 weeks. Some particles remained permanently producing a punctate purplish-black discolouration.</p> |
| Chronic | <p>On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.</p> <p>Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.</p> <p>Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron</p> |

| | | |
|-------------------------|--|-------------------|
| | penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray. Chronic inhalation exposure of production workers has caused decreased pulmonary function and myocardial dystrophy. There is suggestive but inconclusive evidence that carbon black containing polyaromatic hydrocarbons (PAHs) has been responsible for induction of skin cancers in exposed workers. Long term inhalation of carbon black can cause cough, phlegm, tiredness, chest pain and headache. Dermal, mucosal, or inhalation exposure can cause irritation. | |
| Activated Charcoal AC35 | TOXICITY | IRRITATION |
| | Not Available | Not Available |
| carbon, activated | TOXICITY | IRRITATION |
| | Oral (rat) LD50: >2-000 mg/kg ^[1] | Not Available |
| Legend: | 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances | |

| | | | |
|--|---|---------------------------------|---|
| CARBON, ACTIVATED | No significant acute toxicological data identified in literature search. The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing. | | |
| Acute Toxicity | ☉ | Carcinogenicity | ☉ |
| Skin Irritation/Corrosion | ☉ | Reproductivity | ☉ |
| Serious Eye Damage/Irritation | ☉ | STOT - Single Exposure | ☉ |
| Respiratory or Skin sensitisation | ☉ | STOT - Repeated Exposure | ☉ |
| Mutagenicity | ☉ | Aspiration Hazard | ☉ |
| | Legend: ✘ – Data available but does not fill the criteria for classification ✔ – Data available to make classification ☉ – Data Not Available to make classification | | |

SECTION 12 ECOLOGICAL INFORMATION

12.1. Toxicity

| Activated Charcoal AC35 | ENDPOINT | TEST DURATION (HR) | SPECIES | VALUE | SOURCE |
|-------------------------|---------------|--------------------|---------------|---------------|---------------|
| | Not Available | Not Available | Not Available | Not Available | Not Available |

| carbon, activated | ENDPOINT | TEST DURATION (HR) | SPECIES | VALUE | SOURCE |
|-------------------|---------------|--------------------|---------------|---------------|---------------|
| | Not Available | Not Available | Not Available | Not Available | Not Available |

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

12.2. Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|------------|---------------------------------------|---------------------------------------|
| | No Data available for all ingredients | No Data available for all ingredients |

12.3. Bioaccumulative potential

| Ingredient | Bioaccumulation |
|------------|---------------------------------------|
| | No Data available for all ingredients |

12.4. Mobility in soil

| Ingredient | Mobility |
|------------|---------------------------------------|
| | No Data available for all ingredients |

12.5. Results of PBT and vPvB assessment

| | P | B | T |
|-------------------------|----------------|----------------|----------------|
| Relevant available data | Not Applicable | Not Applicable | Not Applicable |
| PBT Criteria fulfilled? | Not Applicable | Not Applicable | Not Applicable |

12.6. Other adverse effects

No data available

SECTION 13 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

| | |
|-------------------------------------|---|
| Product / Packaging disposal | <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> ▶ Reduction ▶ Reuse ▶ Recycling ▶ Disposal (if all else fails) <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.</p> <ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. <p>#</p> <p>Waste should not be disposed of by release to sewers.</p> |
| Waste treatment options | Not Available |
| Sewage disposal options | Not Available |

SECTION 14 TRANSPORT INFORMATION

Labels Required

| | |
|-------------------------|----------------------|
| Marine Pollutant | NO Not Applicable |
| HAZCHEM | Not Applicable |

Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

| | | | | | | | | | | | |
|---|---|--------------------------------|----------------|---------------------|----------------|--------------|----------------|--------------------|----------------|------------------|----------------|
| 14.1. UN number | Not Applicable | | | | | | | | | | |
| 14.2. UN proper shipping name | Not Applicable | | | | | | | | | | |
| 14.3. Transport hazard class(es) | <table border="0"> <tr> <td>Class</td> <td>Not Applicable</td> </tr> <tr> <td>Subrisk</td> <td>Not Applicable</td> </tr> </table> | Class | Not Applicable | Subrisk | Not Applicable | | | | | | |
| Class | Not Applicable | | | | | | | | | | |
| Subrisk | Not Applicable | | | | | | | | | | |
| 14.4. Packing group | Not Applicable | | | | | | | | | | |
| 14.5. Environmental hazard | Not Applicable | | | | | | | | | | |
| 14.6. Special precautions for user | <table border="0"> <tr> <td>Hazard identification (Kemler)</td> <td>Not Applicable</td> </tr> <tr> <td>Classification code</td> <td>Not Applicable</td> </tr> <tr> <td>Hazard Label</td> <td>Not Applicable</td> </tr> <tr> <td>Special provisions</td> <td>Not Applicable</td> </tr> <tr> <td>Limited quantity</td> <td>Not Applicable</td> </tr> </table> | Hazard identification (Kemler) | Not Applicable | Classification code | Not Applicable | Hazard Label | Not Applicable | Special provisions | Not Applicable | Limited quantity | Not Applicable |
| Hazard identification (Kemler) | Not Applicable | | | | | | | | | | |
| Classification code | Not Applicable | | | | | | | | | | |
| Hazard Label | Not Applicable | | | | | | | | | | |
| Special provisions | Not Applicable | | | | | | | | | | |
| Limited quantity | Not Applicable | | | | | | | | | | |

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

| | | | | | | | | | | | | | | | |
|---|---|--------------------|----------------|---------------------------------|----------------|-------------------------------|----------------|--|----------------|--|----------------|---|----------------|--|----------------|
| 14.1. UN number | Not Applicable | | | | | | | | | | | | | | |
| 14.2. UN proper shipping name | Not Applicable | | | | | | | | | | | | | | |
| 14.3. Transport hazard class(es) | <table border="0"> <tr> <td>ICAO/IATA Class</td> <td>Not Applicable</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>Not Applicable</td> </tr> </table> | ICAO/IATA Class | Not Applicable | ICAO / IATA Subrisk | Not Applicable | ERG Code | Not Applicable | | | | | | | | |
| ICAO/IATA Class | Not Applicable | | | | | | | | | | | | | | |
| ICAO / IATA Subrisk | Not Applicable | | | | | | | | | | | | | | |
| ERG Code | Not Applicable | | | | | | | | | | | | | | |
| 14.4. Packing group | Not Applicable | | | | | | | | | | | | | | |
| 14.5. Environmental hazard | Not Applicable | | | | | | | | | | | | | | |
| 14.6. Special precautions for user | <table border="0"> <tr> <td>Special provisions</td> <td>Not Applicable</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>Not Applicable</td> </tr> <tr> <td>Cargo Only Maximum Qty / Pack</td> <td>Not Applicable</td> </tr> <tr> <td>Passenger and Cargo Packing Instructions</td> <td>Not Applicable</td> </tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td> <td>Not Applicable</td> </tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td> <td>Not Applicable</td> </tr> <tr> <td>Passenger and Cargo Limited Maximum Qty / Pack</td> <td>Not Applicable</td> </tr> </table> | Special provisions | Not Applicable | Cargo Only Packing Instructions | Not Applicable | Cargo Only Maximum Qty / Pack | Not Applicable | Passenger and Cargo Packing Instructions | Not Applicable | Passenger and Cargo Maximum Qty / Pack | Not Applicable | Passenger and Cargo Limited Quantity Packing Instructions | Not Applicable | Passenger and Cargo Limited Maximum Qty / Pack | Not Applicable |
| Special provisions | Not Applicable | | | | | | | | | | | | | | |
| Cargo Only Packing Instructions | Not Applicable | | | | | | | | | | | | | | |
| Cargo Only Maximum Qty / Pack | Not Applicable | | | | | | | | | | | | | | |
| Passenger and Cargo Packing Instructions | Not Applicable | | | | | | | | | | | | | | |
| Passenger and Cargo Maximum Qty / Pack | Not Applicable | | | | | | | | | | | | | | |
| Passenger and Cargo Limited Quantity Packing Instructions | Not Applicable | | | | | | | | | | | | | | |
| Passenger and Cargo Limited Maximum Qty / Pack | Not Applicable | | | | | | | | | | | | | | |

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

| | |
|--------------------------------------|----------------|
| 14.1. UN number | Not Applicable |
| 14.2. UN proper shipping name | Not Applicable |

| | | |
|------------------------------------|--------------------|----------------|
| 14.3. Transport hazard class(es) | IMDG Class | Not Applicable |
| | IMDG Subrisk | Not Applicable |
| 14.4. Packing group | Not Applicable | |
| 14.5. Environmental hazard | Not Applicable | |
| 14.6. Special precautions for user | EMS Number | Not Applicable |
| | Special provisions | Not Applicable |
| | Limited Quantities | Not Applicable |

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

| | | |
|------------------------------------|---------------------|----------------|
| 14.1. UN number | Not Applicable | |
| 14.2. UN proper shipping name | Not Applicable | |
| 14.3. Transport hazard class(es) | Not Applicable | Not Applicable |
| 14.4. Packing group | Not Applicable | |
| 14.5. Environmental hazard | Not Applicable | |
| 14.6. Special precautions for user | Classification code | Not Applicable |
| | Special provisions | Not Applicable |
| | Limited quantity | Not Applicable |
| | Equipment required | Not Applicable |
| | Fire cones number | Not Applicable |

14.7. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

CARBON, ACTIVATED(7440-44-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

European Customs Inventory of Chemical Substances ECICS (English)

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft

UK Workplace Exposure Limits (WELs)

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2015/830; Regulation (EC) No 1272/2008 as updated through ATPs.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

National Inventory Status

| National Inventory | Status |
|-------------------------------|---|
| Australia - AICS | Y |
| Canada - DSL | Y |
| Canada - NDSL | N (carbon, activated) |
| China - IECSC | Y |
| Europe - EINEC / ELINCS / NLP | Y |
| Japan - ENCS | N (carbon, activated) |
| Korea - KECI | Y |
| New Zealand - NZIoC | Y |
| Philippines - PICCS | Y |
| USA - TSCA | Y |
| Legend: | Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets) |

SECTION 16 OTHER INFORMATION

| | |
|---------------|------------|
| Revision Date | 24/04/2017 |
| Initial Date | 29/11/2016 |

Full text Risk and Hazard codes

| | |
|------|---|
| H228 | Flammable solid. |
| H252 | Self-heating in large quantities; may catch fire. |

SDS Version Summary

| Version | Issue Date | Sections Updated |
|---------|------------|---|
| 2.1.1.1 | 29/11/2016 | Acute Health (skin), Acute Health (swallowed) |
| 4.1.1.1 | 24/04/2017 | Emergency Telephone Number |

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection

EN 340 Protective clothing

EN 374 Protective gloves against chemicals and micro-organisms

EN 13832 Footwear protecting against chemicals

EN 133 Respiratory protective devices

Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average

PC – STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

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