

Carbon

PJD3017

Date of Issue: - January 2018

Safety Data Sheet

SECTION 1. Identification of Substance and and Company Information

Product Group: Carbon
REACH Registration No(s). 01-2119384822-32
Product Code: PJD3017
Supplier Name: Procter Johnson, Excelsior Works, Castle Park, Flint, Flintshire CH6 5NT, United Kingdom
E-Mail: info@procterjohnson.com
Emergency Telephone : +44(0)1352 732157 (Office Hours)
Field of Application: Cement and Cementitious based products.

SECTION 2. Hazards Identification

2.1 Classification of the substance or mixture:

Regulation (EC) No. 1272/2008[CLP/GHS] Not Classified
Directive 67/548/EEC[DSD] Not Classified

2.2 Label Elements:

Hazard Pictograms Not Applicable.
Signal Word No signal word.
Hazard Statements No Known significant effects or critical hazards.

Precautionary Statements:

Prevention Not applicable
Response Not applicable
Storage Not applicable
Disposal Not applicable

2.3 Other Hazards:

Other Hazards which do not result in classification Handling and/or processing may generate dust which can cause mechanical irritation of the eyes, skin, nose and throat.

SECTION 3. Composition/ Information on Ingredients

Product Definition (REACH): 01-2119384822-32

Component(s):	CAS No.(s)	Reg(EC) No. 1272/2008 [CLP/GHS]	Directive 67/548/EEC [DSD]	Listed EH40/2005	Weight (%)
Carbon Black	1333-86-4	Not Classified	Not Classified	Yes	22-28
Preservative	n/a	Not Classified	n/a	n/a	0.15
Dispersant	n/a	Not Classified	n/a	n/a	0.8-1.2
Stabiliser	11138-66-2	Not Classified	n/a	n/a	<0.1
n/a	n/a	n/a	n/a	n/a	0
n/a	n/a	n/a	n/a	n/a	0
n/a	n/a	n/a	n/a	n/a	0
n/a	n/a	n/a	n/a	n/a	0

Within the present knowledge of the supplier this product does not contain any hazardous ingredients in quantities requiring reporting in this section, in accordance with EU or national regulations.

SECTION 4. First Aid

4.1 Description of First Aid Measures

Inhalation: Move exposed person to fresh air. Keep casualty warm and resting. If not breathing commence appropriate first aid. If unconscious place in the recovery position and seek medical help. Maintain an open airway - loosen tight clothing. Seek medical advice if symptoms occur.

Ingestion: Do not induce vomiting. If conscious give several glasses of water. Never give anything by mouth to an unconscious person.

Skin Contact: No special measures required.

Eye Contact: Flush with copious amounts of water for at least 10 minutes. Seek medical advice if irritation persists.

4.2 Most important symptoms and effects, both acute and delayed

The product contains a substance that is listed by International Agency for Cancer (IARC). See also Section 11. May aggravate respiratory disorders.

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

See Section 11 for detailed information on health effects and symptoms.

SECTION 5. Firefighting Measures

5.1 Extinguishing media

Suitable: Foam, Carbon Dioxide, Nitrogen, Dry Chemical or Water Spray (Fog). Water Fog is recommended.

Unsuitable: Do not use a solid stream of water as this may scatter and spread fire.

5.2 Special Hazards from the Product Hazards

May Smoulder if ignited. Carbon black that has been burning should be observed for 48 hours to ensure no smouldering material is present. The product may float on water and this should be contained if possible. This material constitutes a fire hazard as it floats on water.

Hazardous Combustion Products

Oxides of Carbon and Sulphur, Organic products of combustion.

5.3 Advice for Firefighters Special Precautions

Carbon Dioxide may be given off.

Specific Protective Equipment

Fire Fighters should wear suitable protective equipment and self contained breathing apparatus (SCBA) with a full face piece operated in positive pressure mode. Wet material containing carbon black can produce very slippery surfaces.

SECTION 6. Accidental Release Measures

6.1 Personal precautions, Protective Equipment and Emergency Procedures.

Take no action if personal safety is at risk or if untrained. Do not allow unnecessary or untrained personnel to enter the area. Avoid breathing dust. Provide adequate ventilation and wear appropriate protective equipment. Spilt product may represent a slip hazard

6.2 Environmental Precautions

Avoid dispersal, runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution.

6.3 Methods and materials for containment and clean up.

Small Spill

Clean up promptly with a vacuum. Vacuums with a high efficiency particulate filter are recommended. Do not create a dust cloud using a brush or compressed air. Pick up and transfer to a suitably labelled container.

Large Spill

Move containers from the area. Avoid dispersal, runoff and contact with soil, waterways, drains and sewers. Vacuum material and place in an appropriate container. Dispose of material through an approved waste disposal contractor.

6.4 Reference to Other Sections

Section 1 - Emergency Contact Details
Section 8 - Personal Protective Equipment
Section 13 - Additional waste Treatment Information.

SECTION 7. Handling and Storage

7.1 Precaution for Safe Handling

Avoid contact with skin and eyes, do not breath dust. Dust should not be allowed to accumulate as this may be released into the air, forming possibly explosive mixtures at sufficient concentration. Fine dust can penetrate electrical equipment and may cause electrical shorts. Precautionary measure against static discharge should be in place. The immediate area should be cleared of carbon black if hot work (welding, torch cutting, etc) is to be carried out. Non-sparking tools should be used.

7.2. Conditions for Safe Storage inc. any Incompatibilities

Keep in a dry, cool, well ventilated area. Keep away from sources of heat or ignition. Do not store together with strong oxidising agents or with volatile chemicals. Keep in properly labelled containers.

7.3 Specific End Use(s)

Recommendations

No specific recommendations.

Sector Specific Solutions

Not available.

SECTION 8. Exposure Controls/ Personal Protection

8.1 Control Parameters

<u>Ingredient Name</u>	Inhalable 8HrTWA/ mg/m³	STEL/ mg/m³	Respirable 8HrTWA/ mg/m³
Carbon	3.5	7	n/a
-	-	-	0
-	-	-	0
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
Conclusion/Summary	3.5		

Occupational Exposure Limits:Ref
EH40/2005 (United Kingdom(UK),
8/2007

Derived Effect Levels

Based on:	Type	Exposure	Value/ mg/m ³	Population
Carbon	DNEL	Short Term Inhalation	2	Workers
	DNEL	Long Term Inhalation	not available	Workers
	DNEL	Long Term Inhalation	not available	Consumers
Conclusion/ Summary	Not Available			

Predicted Effect Concentrations

<u>Ingredient Name</u>	Type	Compartment Detail	Value
Based on:	PNEC	Soil	-
Carbon	PNEC	Sewage Treatment Plant	-
	PNEC	Marine Water Sediment	-
	PNEC	Marine Water	-
	PNEC	Intermittent Release	-
	PNEC	Fresh Water Sediment	-
	PNEC	Fresh Water Sediment	-

Conclusion/ Summary:

not available

Recommended Monitoring procedures

If this product contains ingredients with exposure limits then personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation, control procedure and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN689 for methods for the assessment of exposure by inhalation to chemical agents. National guidance documents should be consulted for methods for the determination of hazardous substances.

8.2. Exposure Controls

Occupational Exposure Controls

Technical Measures

Ensure adequate ventilation to maintain below occupational exposure limits. If operations generate dust, fumes, gas, vapours or mist use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal Protection Limits

Respiratory Protection

An approved air purifying respirator (APR) for particulates may be permissible where air concentrations exceed occupational exposure limits. However, the protection provided by APR's is limited. Use positive pressure air supplied respirators if there is any potential for uncontrolled release, where exposure levels are not known or in any circumstance where APR's may not provide adequate protection. Use of respirators must include a complete respiratory protection program in accordance with National Standards and current best practices.

Hand Protection

Wear protective gloves to prevent soiling. Barrier cream can be used before handling this product. Hands and exposed skin should be washed with mild soap and water.

Eye Protection

Safety eyewear, complying with an approved standard, should be used where a risk assessment indicates this is necessary to avoid splashes, mists, gases or dusts. If operating conditions cause high dust concentrations to be created use dust goggles.

Skin Protection

Protective equipment should be selected based on the tasks involved and the risk assessment of the process and should be approved by a specialist. Clothing should be changed daily and not allowed to leave the workplace.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practices. Wash hands, forearms and face after handling chemical products, before eating smoking or using the lavatory and shower at the end of each working day. Contaminated clothing should be washed prior to re-use. Eyewash stations and emergency showers should be available close to the working location.

**Environmental Exposure Control-
Technical Measures**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases fume scrubbers, filters or engineered modifications to the process equipment will be necessary to reduce emissions to an acceptable level.

SECTION 9. Physical and Chemical Properties
General Information

Appearance	Physical State	Liquid
	Colour	Black
	Odour	Odourless

Important Health, Safety and Environmental Information.

pH	4 - 8
Melting Point	> 1000°C
Bulk Density	0.3 - 1.2 g/cm ³
Solubility	<0.1 g/l (water, pH6)

SECTION 10. Stability and Reactivity

10.1 Reactivity	May react exothermically with strong oxidisers.
10.2 Chemical Stability	The product is stable.
10.3 Hazardous Reactions	Under normal conditions of handling and use hazardous reactions will not occur.
10.4 Conditions to Avoid	Do not expose to temperatures > 300C. Keep away from oxidising agents.
10.5 Incompatible Materials	Strong Oxidising Agents
10.6 Hazardous Decomposition Products	Oxides of carbon and sulphur, organic combustion products.

SECTION 11. Toxicological Information

Potential Acute Health Effects Exposure to airborne concentrations in excess of statutory or recommended exposure limits may cause irritation of the eyes

<u>Acute Toxicity Based on:</u>	Carbon
Oral LD50	LD50/ Oral, Rat > 5000mg/kg
Inhalation LC50 Inhalation Dusts and Mists	No data available.
Dermal LD50	No data available.
STOT - Single Exposure	None observed.
<u>Irritation/Corrosion Based on:</u>	Carbon
Skin	Rabbit.0.68/8 Slight Irritation @ 24hrs, Non-irritating @ 48hrs
Eyes	Non-irritating (Rabbit. Draize Score 10-17/110 @ 24hrs)
Respiratory	No data available.
<u>Sensitization Based on:</u>	Carbon
Skin	Not sensitizing

Respiratory Not sensitizing

Potential Chronic Health Effects

Subchronic Toxicity Based on Carbon

Rat inhalation, 90 days NOAEL = 1mg/m³
 Target Organ - Lungs
 Effect - Inflammation, hyperplasia, fibrosis.

Rat/ Mouse inhalation, 2 years Target Organ - Lungs
 Effect - Inflammation, fibrosis, tumors.

STOT Repeated Exposure These effects are the result of exposure under overload conditions and the effect on rats is species specific. The information discussed in the following sections is also relevant in proving the non classification of carbon black with regards to 'specific target organs systemic toxicity' (STOT Repeated Exposure, Group 1 (Lung))

Chronic Toxicity Based on Carbon

Rat, Oral, 2 years: Effect: no tumors

Mouse, Oral, 2 years: Effect: no tumors

Mouse, Dermal, 18 months: Effect: no skin tumors

Mouse/ Hamster, Inhalation, 12-24 months: Effect: no lung tumors

Rat, Inhalation, 2 years, Target Organ: Lungs, Effect: inflammation, fibrosis, tumors

Note: Tumors in rat lungs are related to fine particle overload phenomenon rather than to a specific chemical effect of the dust particles on the lungs. These effects in rats have been observed in studies on other inorganic, insoluble particles and appear to be species specific. Tumors have not been observed in other species (i.e. mouse and hamster) for other insoluble particles under similar circumstances and study conditions.

Mutagenicity Based on:

Carbon
In Vitro - Carbon black is not suitable to be tested in bacterial (Ames test) and other in vitro systems due to its insolubility. When testes results for carbon black showed no mutagenic effect. Organic solvent extracts can contain traces of polycyclic aromatic hydrocarbons (PAHs). A bioavailability study of PAHs showed that they are tightly bound to the carbon black and are not bioavailable. **In Vivo** - 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 leading to chronic inflammation and the release of oxygen species. This is considered to be a secondary genotoxic effect and carbon black itself would not be considered to be mutagenic.

Reproductive Toxicity: None known

Synergistic Materials: None known

Carcinogenic Effects: Carcinogenicity Assessment: Tumor development in rats caused by lung overload, no epidemiological evidence for tumors in humans. Carbon Black is listed by the International Agency for Research on Cancer (IARC). ACGIH listed carbon black as A3 'confirmed animal carcinogen with unknown relevance to humans. Does not contain any substances listed by the National Toxicology Program (NTP), Occupational Safety and Health Administration (OSHA) or European Union (EU).

Carbon Black IARC Statement: In 2006 IARC re-affirmed it's 1995 classification of carbon black as category 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 animals for the carcinogenicity of carbon black, resulting in their classification of carbon black as 'possibly carcinogenic to humans (Group 2B)'

The US National Institute of Occupational Safety and Health (NIOSH) 1978 criteria document on carbon black recommends that only carbon blacks with polycyclic aromatic hydrocarbon (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 0.1mg/m³ for PAHs in air, measured as the cyclohexane extractable fraction.

Epidemiology:

Results of epidemiological studies of carbon black workers suggests that cumulative exposure to carbon black may result in small decrements in lung function. A recent US respiratory morbidity study suggested a 27ml decline in FEV1 from a 1mg/m³ (inhalable fraction) exposure over a 40 year period. An older European investigation suggested a 48ml decline under the same conditions. However, the results from both were only of borderline significance, normal age related decline over the same period would be approximately 1200ml.

The relationship between other respiratory symptoms and exposure to carbon black is even 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 conclusions that can be drawn about reported symptoms. The study, however, indicated a link between carbon black and small opacities on chest films, with negligible effects on lung function.

A study on carbon black production workers in the United Kingdom (Sorahan et al 2001) found an increased risk of lung cancer in two of the five plants studied; however, the increase was not related to the dose of carbon black. The authors did not consider the increased risk of lung cancer to be attributed to carbon black exposure. A German study of carbon black workers at one plant (Wellmann et al 2006, Morfeld et al 2006(a), Buechte et al 2006, Morfeld et al 2006(b)) found a similar increase in lung cancer risk but, like the 2001 UK study, found no association with carbon black exposure. In contrast a large U.S. study (Dell et al. 2006) of 18 plants showed a reduction in lung cancer risk in carbon black production workers. Based on these studies, the February 2006 working group at IARC concluded that the human evidence for carcinogenicity was inadequate (Baan et al. 2006)

Since this IRAC evaluation of carbon black, Sorahan and Harrington (2007) reanalysed the United Kingdom study data using an alternative exposure hypothesis and found a positive association with carbon black exposure in two of the five plants. The same exposure hypothesis was applied by Morfeld and McCunney (2007) to the German cohort; in contrast, they found no association between carbon black exposure and lung cancer risk, thus, no support for the alternative exposure hypothesis used by Sorahan and Harrington.

Overall, as a result of these detailed investigations, no causative link between carbon black exposure and cancer in humans has been demonstrated. This view is consistent with the IARC evaluation in 2006.

Inhalation: Additional information relating to hazard to humans.

The scientific investigation of the carcinogenic effects of inorganic, low solubility particles has not been concluded. Many toxicologists believe that the tumor development in experiments on rats was through a type specific mechanism in overloading of the rat lung.

Applying the criteria of the Globally Harmonised System of Classification and Labelling (GHS) the results do not lead to a classification of carbon black as a carcinogen. UN GHS states that even if adverse effects are seen in animal studies or in vitro tests, no classification is needed if the mode of action is not relevant to humans. The EU CLP Regulations also says that no classification is necessary if the mechanism is not relevant to humans and also that lung overload in animals is listed under mechanisms not relevant to humans.

**Aspiration Hazard:
Mutagenicity Based on:**

Not determined.
Carbon
IARC Category 2B

Chronic Effects:

Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

SECTION 12. Ecological Information

Aquatic Toxicity Based on:

Carbon

LC50 (96hrs)

> 1000mg/l. 96 hrs, Fish (Brachydanio rerio)

EC50 (3hrs)

> 800mg/l, Bacteria Activated Sludge

<u>Environmental Fate Based on:</u>	Carbon
Mobility	No data available
Bioaccumulation	No data available
Persistence/ Degradability	Not expected to degrade
PBT & vPvB Assessment	This substance does not meet the criteria for PBT of vPvB
Other Adverse Effects	No other data available

SECTION 13. Disposal Considerations

Product

Methods of Disposal	Examine possibilities of re-use. Product residues and contaminated containers should be sealed, labelled and disposed of or recycled in accordance with relevant regulations. For larger quantities contact the supplier. The recipient of any waste should be notified of any possible hazards. Within the EC the appropriate code from the European Waste List (EWL) should be used.
Hazardous Waste	Within the present knowledge of the supplier this product is not regarded as hazardous waste as defined by EU Directive 91/689/EEC

SECTION 14. Transport Information

	ADR/RID	AND/ADNR	IMDG
UN No.	-	-	-
UN Proper Shipping Name	-	-	-
Transport Hazard Class(es) Marks	-	-	-
Packing Group	-	-	-
Environmental Hazards	No	No	No
Special Precautions for user/ Additional Information	Not Regulated	Not Regulated	Not Regulated

SECTION 15. Regulatory Information

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XVII - Restrictions on manufacture, placing on the market, and use of certain dangerous substances, mixture and articles. Not Applicable

Annex XIV - List of substances subject to authorisation - Substances of very high concern. None of the components are listed.

Guidance Notes

Workplace Exposure Limits EH40.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments. Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments. Commission Directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

16. Other Information

General Information

Only trained personnel should use this material.

The following information is provided to conform to article 13 of the EC Directive on Packaging and Packaging Waste 94/62/EC:

- Wherever possible we use returnable packaging and pallets. Details of these are on our Sales Contracts
- For any non-returnable packaging the cost of disposal is at your expense, but we do have a list of reprocessors available
- In most cases, but not all, we are able to supply products in returnable packaging but the additional cost of this will be for the customer's expense. Please ask for details with your specific requirements
- Any products supplied in returnable packaging is clearly marked to this effect.

Risk Phrases In Full

Not applicable.

Hazard Statements In Full

Not applicable.

More information on the safety of chemicals can be found in the European Chemicals Agency's 'Candidate List' of substances of very high concern (<http://echa.europa.eu/web/guest/candidate-list-table>)

Date of Issue	15/01/2018
Date of Previous Issue	15/09/2016
Issue Number	4
Review Date	15/01/2019

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