IFA
Institut für Arbeitsschutz der
Deutschen Gesetzlichen Unfallversicherung

Carbon Black

IDENTIFICATION

Carbon Black
Acetylene Black
Aroflow
Arogen
C.I. Pigment Black 6
C.I. Pigment Black 7
C.I. 77266

ZVG No:	91940
CAS No:	1333-86-4
EC No:	215-609-9

CHARACTERISATION

SUBSTANCE GROUP CODE

125000 Carbon compounds, inorganic

STATE OF AGGREGATION

The substance is solid.

PROPERTIES

powder
Industrial soot also as granulates as well as in the form of soot preparations, i.e. liquid, in the form of paste or firm soot-solvent-concentrates, in which soot is dispersed.
black
odourless

CHEMICAL CHARACTERISATION

A form of carbon. It is distinguished between:
1. Soot from imperfect combustion. It can contain a considerable part of carcinogenic polycyclic aromatic hydrocarbons (PAH).
2. Industrial soot (carbon black) which is produced under contolled conditions and has defined properties. Aromatic hydrocarbons can be removed from industrial soot through purification.

This data sheet refers to purified industrial soot.

Combustible substance, poorly flammable.
Practically insoluble in water.

Substance information in Wikipedia

DUST EXPLOSIVENESS

There is a risk of a dust explosion if the following conditions are met:
- The substance is given in very finely distributed form (powder, dust).
- The substance is whirled up in sufficient quantity in the air.
- An ignition source is present (flame, spark, electrostatic discharge, etc.)

Quelle: 06002 06806

FORMULA

C

Molar mass: 12,01 g/mol

PHYSICAL AND CHEMICAL PROPERTIES

Sublimation point | Density | Solubility |
Hazardous reactions

SUBLIMATION POINT

Sublimation point: 3652 ... 3697 °C

Reference: 00453

DENSITY

DENSITY

Value: 1,8 ... 2,1 g/cm³

Temperature: 20 °C

Reference: 00220

SOLUBILITY IN WATER

practically insoluble in water

Reference: 00453

HAZARDOUS REACTIONS

Hazardous chemical reactions

The substance can react dangerously with:
oxidizing agents

TOXICOLOGY / ECOTOXICOLOGY

TOXICOLOGICAL DATA

LD50 oral rat

Value: › 15400 mg/kg

Acute Toxicity Data. Journal of the American College of Toxicology, Part B. Vol. 15(Suppl,

LD50 dermal

Species: Rabbit
Value: › 3000 mg/kg
Acute Toxicity Data. Journal of the American College of Toxicology, Part B. Vol. 15(Suppl,

Reference: 02071

SAFE HANDLING

Handling | Storage | Fire and explosion protection | Personal protection | Disposal considerations | Accidental release measures | Fire fighting measures

TECHNICAL MEASURES - HANDLING

Workplace
Select ventilation measures according to the other used substances.
If there is a chance that dusts may be released, then the work room must provide adequate ventilation.
Washing facility at the workplace required.

Equipment
Use closed apparatus if possible.
Suction off dust at the point of exit.
Consider emission limit values, a purification of waste gases if necessary.
Containers are to be marked clearly.

Advice on safer handling
Do not leave container open.
Sufficient ventilation must be guaranteed for refilling, transfer, or open use.
Fill only into clearly marked containers.
Avoid rising dust.

Cleaning and maintenance
Avoid dust formation. Dust formation that cannot be avoided must be collected regularly.
Use a tested industrial vacuum cleaner or suction device.
Do not raise dust while cleaning.
Use of a blower for cleaning is not permitted.
Alternative: clean damp.

TECHNICAL MEASURES - STORAGE

Storage
Do not use any food containers - risk of mistake.
Containers have to be marked clearly and permanently.
Keep container tightly closed in a cool, dry and well-ventilated place.

Conditions of collocated storage
Storage class 10 - 13 (Other liquids and solids)
Only substances of the same storage class should be stored together.
Collocated storage with the following substances is prohibited:
- Pharmaceuticals, foods, and animal feeds including additives.
- Infectious, radioactive und explosive substances.
- Strongly oxidizing substances of storage class 5.1A.
Under certain conditions the collocated storage with the following sub-stances is permitted (For more details see TRGS 510):
- Gases.

- Flammable liquids of storage class 3.
- Other explosive substances of storage class 4.1A.
- Pyrophoric substances.
- Substances liberating flammable gases in contact with water.
- Oxidizing substances of storage class 5.1B.
- Ammonium nitrate and preparations containing ammonium nitrate.
- Organic peroxides and self reactive substances.
- Combustible and non combustible acutely toxic substances of stora-ge classes 6.1A and 6.1B.

The substance should not be stored with substances with which hazardous chemical reactions are possible.

TECHNICAL MEASURES - FIRE AND EXPLOSION PROTECTION

Technical, constructive measures

Substance is combustible.

Fire fighting equipment must be available.

If there is a risk of a dust explosion due to the dust-like distribution and the quantities used, measures according to TRGS 722 (prevention of formation), 723 (prevention of ignition) and TRGS 724 (constructive explosion protection) may become necessary.

Precaution on handling

Areas in which the substance can arise as a dust in such quantities that a dust explosion could occur are to be considered as at a risk of explosion.

Keep away from sources of ignition (e.g. open flames, heat sources and sparks).

PERSONAL PROTECTION

Body protection

Wear an apron or a lab coat.

Respiratory protection

In an emergency (e.g.: unintentional release of the substance) respiratory protection must be worn. Consider the maximum period for wear.

Respiratory protection: Particle filter P1, colour code white.

Eye protection

Wear glasses with side protection.

Hand protection

Select hand protection according to the other used substances.

Occupational hygiene

Take heed of usual occupational hygiene measures when handling chemical substances, espacially wash the skin with soap and water before breaks and at the end of work and apply fatty skin-care products after washing.

DISPOSAL CONSIDERATIONS

Non-hazardous waste according to Waste Catalogue Ordinance (AVV).

If there is no way of recycling it must be disposed of in compliance with the respective national and local regulations.

Collection of small amounts of substance:

Collect in container for inorganic solids.

Collection vessels must be clearly labelled with a systematic description of their contents. Store the vessels in a well-ventilated location. Entrust them to the appropriate authorities for disposal.

ACCIDENTAL RELEASE MEASURES

Wear a dust mask.

Pick up without creating dust.
Afterwards ventilate area and wash spill site.

Endangerment of watert:
No hazards to sources of water are to be feared if released into water, drainage, sewer, or the ground.

FIRE FIGHTING MEASURES

Suitable extinguishing media
Water (spray - not splash)
Dry extinguishing powder
Alcohol resistant foam
Carbon dioxide

Instructions
Seek immediate cover in case of sudden release and raising of large quantities of dust.
If possible, take container out of dangerous zone.
Shut off sources of ignition.

Special protective equipment
In the case of a fire hazardous substances can be released.
Carbon monoxide and carbon dioxide
Wear self-contained breathing apparatus.

REGULATIONS

GHS Classification/Labelling | Water hazard class | Air quality control | Transport Regulations | MAK recommendations | Technical rules | Regulations of accident insurers

EUROPEAN GHS CLASSIFICATION AND LABELLING

Not a dangerous substance according to GHS.
Registration entry of the manufacturer on the ECHA website

Reference: 07520
State: 2023
Checked: 2023

GERMAN WATER HAZARD CLASS

Substance No: 1742

non-hazardous to waters
Carbon black, as far as labelling with R45 is not necessary
Classification according to the announcement of the list of substances hazardous to water in the Federal Register of 10.08.2017, last update 24.11.2023

TECHNICAL INSTRUCTIONS ON AIR QUALITY CONTROL (TA LUFT)

Chapter 5.2.1 Overall Dust, including fine dust
The emissions of dust in the exhaust gas are not allowed to exceed the following values:

Mass flow: 0,20 kg/hr

or

Mass conc.: 20 mg/m³

The mass per unit volume of 0,15 g/m3 in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h.

TRANSPORT REGULATIONS

Not subject to transport regulations.

Reference: 07520

RECOMMENDATIONS OF MAK-COMMISSION

This data is recommended by scientific experience and is not established law.

Carcinogenic: Category 3
Substances that cause concern that they could be carcinogenic for man but cannot be assessed conclusively because of lack of data. The classification in Category 3 is provisional. Substances for which the available studies have yielded evidence of carcinogenic effects that is not sufficient for classification of the substance in one of the other categories. Further studies are required before a final decision can be made. A MAK or BAT value can be established provided no genotoxic effects have been detected for the substance or its metabolites or the genotoxic effect is not the main effect.

Scope: Carbon black (inhalable fraction)

TECHNICAL RULES FOR HAZARDOUS SUBSTANCES

TRGS 500
Schutzmaßnahmen; Ausgabe September 2019

TRGS 509
Lagern von flüssigen und festen Gefahrstoffen in ortsfesten Behältern sowie Füll- und Entleerstellen für ortsbewegliche Behälter; Ausgabe Juni 2022

TRGS 510
Lagerung von Gefahrstoffen in ortsbeweglichen Behältern; Ausgabe Januar Dezember 2020

TRGS 800
Brandschutzmaßnahmen; Ausgabe Dezember 2010

TRGS 720
Gefährliche explosionsfähige Gemische - Allgemeines; Ausgabe Juli 2020, zuletzt berichtigt März 2021

TRGS 721
Gefährliche explosionsfähige Gemische - Beurteilung der Explosionsgefährdung; Ausgabe Oktober 2020, zuletzt berichtigt Dezember 2020

TRGS 722
Vermeidung oder Einschränkung gefährlicher explosionsfähiger Atmosphäre, Ausgabe Februar 2021

TRGS 723
Gefährliche explosionsfähige Gemische - Vermeidung der Entzündung gefährlicher explosionsfähiger Gemische; Ausgabe Juli 2019, zuletzt geändert Oktober 2020

TRGS 724
Gefährliche explosionsfähige Gemische - Maßnahmen des konstruktiven Explosionsschutzes, welche die Auswirkung einer Explosion auf ein unbedenkliches Maß beschränken, Ausgabe Juli 2019

TRGS 551
Teer und andere Pyrolyseprodukte aus organischem Material
Ausgabe August 2015, geändert und ergänzt Januar 2016

TRGS 906
Verzeichnis krebserzeugender Tätigkeiten oder Verfahren nach § 2 Abs. 3 Nr. 4 GefStoffV; Ausgabe April 2023
Tätigkeiten, bei denen die betreffenden Arbeitnehmer polyzyklischen aromatischen Kohlenwasserstoffen ausgesetzt sind, die in Steinkohlenruß, Steinkohlenteer oder Steinkohlenpech vorhanden sind.

REGULATIONS OF GERMAN ACCIDENT INSURERS

DGUV Regel 112-190
Benutzung von Atemschutzgeräten, Ausgabe November 2021
(in German only)

LINKS

International Limit Values
OECD Screening Information DataSet (SIDS)
The MAK Collection for Occupational Health and Safety

REFERENCES

Quelle: 00001
IFA: Erfassungs- und Pflegehandbuch der GESTIS-Stoffdatenbank (nicht öffentlich)
Data acquisition and maintenance manual of the GESTIS substance database (non-public)

Quelle: 00220
IUCLID-CD-ROM, Year 2000 edition; European Commission, Joint Research Centre, Institute for Health and Consumer Protection, European Chemicals Bureau; Ispra, Italy

Quelle: 00453
HSDB-Datenbankrecherche ab 2008

Quelle: 00500
RÖMPP Online ab 2003

Quelle: 01221
GHS-Sicherheitsdatenblatt, Sigma-Aldrich
GHS Material Safety Data Sheet, Sigma-Aldrich

Quelle: 02071
Toxicological Data, compiled by the National Institute of Health (NIH), USA, selected and distributed by Technical Database Services (TDS), New York, 2009

Quelle: 05300
TRGS 510 "Lagerung von Gefahrstoffen in ortsbeweglichen Behältern" Ausgabe Dezember 2020

Quelle: 06002
L. Roth, U. Weller
"Gefährliche Chemische Reaktionen" Loseblattsammlung mit Ergänzungslieferungen, ecomed-Verlag
("Dangerous chemical reactions" loose-leaf collection with supplement deliveries)

Quelle: 06806
GESTIS-STAUB-EX-Datenbank des IFA www.dguv.de/ifa/gestis-staub-ex

Quelle: 07520
Europäische Chemikalienagentur ECHA: Informationen über registrierte Substanzen
European Chemicals Agency ECHA: Information on registered substances

Quelle: 07580
Bekanntmachung der Liste der wassergefährdenden Stoffe im Bundesanzeiger vom 10.08.2017, zuletzt geändert 24.11.2023

Quelle: 08112
DFG Deutsche Forschungsgemeinschaft: MAK- und BAT-Werte-Liste 2023, Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe, Mitteilung 59; GMS PUBLISSO

Quelle: 99999
Angabe des Bearbeiters
Indication of the editor

Identification | Characterisation | Formula | Physical and chemical properties |
Toxicology / Ecotoxikology | Safe handling | Regulations | Links | Literature register