



SAFETY DATA SHEET

According to ISO 11014-1/ ANSI standard Z400.1-2004 and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), 2005

Revision Date:

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product Name: CARBON BLACK

Synonyms: Carbon Black, Furnace Black

This SDS is valid for the following grades: BLACK PEARLS® / MONARCH® 1000, 1300, 1400, 1500; BLACK PEARLS® 1300B1. The foregoing are trademarks of the Cabot Corporation.

Use of the Substance/Preparation: Additive for plastic and rubber, Pigment, Chemical reagent, Batteries, Refractories, Various

Supplier: European Head Office
Interleuvenlaan 15 I
B-3001 Leuven
BELGIUM
Tel: (+32) 16.39.24.00
Fax: (+32) 16.39.24.44

E-Mail Address: SDS@cabot-corp.com

Emergency Telephone Number: See Section 16

2. HAZARDS IDENTIFICATION

Indication of danger: Not a hazardous substance or preparation according to the Global Harmonized System (GHS).

Principle Routes of Exposure: Inhalation, Eye contact, Skin contact

POTENTIAL HEALTH EFFECTS

Eye Contact: May cause mechanical irritation. Irritating, but will not permanently injure eye tissue. Low hazard for usual industrial or commercial handling.

Skin Contact: May cause mechanical irritation, soiling, and skin drying. No cases of sensitization in humans have been reported.

Inhalation: Dust may be irritating to respiratory tract. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. See also Section 8.

Ingestion: Health injuries are not known or expected under normal use. Low hazard for usual industrial or commercial handling.

Carcinogenic Effects: Substance listed by IARC (International Agency for Research on Cancer). See also Section 11.

Target Organ Effects: Lungs

Medical Conditions Aggravated by Exposure: Asthma, Respiratory disorder

Potential Environmental Effects: No special environmental precautions required. Not soluble in water. See also Section 12.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	EINECS/ELINCS Number	Weight %	EU Classification
Carbon Black	1333-86-4	215-609-9	>99	None

4. FIRST AID MEASURES

Skin Contact: Wash thoroughly with soap and water. Seek medical attention if symptoms develop.

Eye Contact: Flush eyes immediately with large amounts of water for 15 minutes. Seek medical attention if symptoms develop.

Inhalation: If cough, shortness of breath or other breathing problems occur, move to fresh air. Seek medical attention if symptoms persist. If necessary, restore normal breathing through standard first aid measures.

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

Notes to Physician: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Use foam, carbon dioxide (CO₂), nitrogen (N₂), dry chemical or water spray. A fog spray is recommended if water is used. DO NOT USE a solid water stream as it may scatter and spread fire.

Special Protective Equipment for Firefighters: Wear suitable protective equipment. In the event of fire, wear self-contained breathing apparatus. Wet carbon black produces very slippery walking surfaces.

Specific Hazards: It may not be obvious that carbon black is burning unless the material is stirred and sparks are apparent. Carbon black that has been on fire should be observed closely for at least 48 hours to ensure no smoldering material is present. Burning produces irritant fumes. The product is insoluble and floats on water. If possible, try to contain floating material. This material creates a fire hazard because it floats on water.

Hazardous Decomposition and/or Combustion Products: Carbon monoxide, Carbon dioxide, Sulphur oxides, Organic products of combustion.

Risk of Dust Explosion: Do not create a dust cloud by using a brush or compressed air. Fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: CAUTION: Wet carbon black produces slippery walking surfaces. Avoid dust formation. Ensure adequate ventilation. Use personal protective equipment. See also Section 8.

Methods for Cleaning Up: Clean up promptly by vacuum. Use of a vacuum with high efficiency particulate air (HEPA) filtration is recommended. Do not create a dust cloud by using a brush or compressed air. Pick up and transfer to properly labelled containers. See Section 13.

Environmental Precautions: Do not allow material to contaminate ground water system. The product is insoluble and floats on water. If possible, try to contain floating material. Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. Do not breathe dust. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated.

Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released in the atmosphere in sufficient concentrations. Do not create a dust cloud by using a brush or compressed air. Fine dust is capable of penetrating electrical equipment and may cause electrical shorts. Take precautionary measures against static discharge. If hot work (welding, torch cutting, etc.) is required the immediate work area must be cleared of carbon black product and dust. Non-sparking tools should be used.

Storage: Keep in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Do not store together with strong oxidizing agents. Do not store together with volatile chemicals as they may be adsorbed onto product. Keep in properly labeled containers.

Carbon black is not classifiable as a Division 4.2 self-heating substance under the UN test criteria. However, the UN criteria for determining if a substance is self-heating is volume dependent, i.e., the auto-ignition temperature decreases with increasing volume. This classification may not be appropriate for large volume storage containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

The table below is a summary. Please see the specific legislation for complete information.

Carbon Black, CAS RN 1333-86-4:	Australia:	3.0 mg/m ³ , TWA
	Belgium - OEL:	3.6 mg/m ³ , TWA
	Canada:	3.5 mg/m ³ , TWA
	China:	4.0 mg/m ³ , TWA
		8.0 mg/m ³ , STEL
	Czech Republic:	2.0 mg/m ³ , TWA
	Finland:	3.5 mg/m ³ , TWA
		7.0 mg/m ³ , STEL
	France - INRS:	3.5 mg/m ³ , TWA/VME
	Germany - TRGS 900:	3.0 mg/m ³ , respirable TWA
		10.0 mg/m ³ , inhalable TWA
	Germany - MAKs:	1.5 mg/m ³ , respirable TWA
		4.0 mg/m ³ , inhalable TWA
	Ireland:	3.5 mg/m ³ , TWA
		7.0 mg/m ³ , STEL
	Italy - OEL:	3.5 mg/m ³ , TWA
	Korea:	3.5 mg/m ³ , TWA
	Netherlands - MAC:	3.5 mg/m ³ , TWA
	Norway:	3.5 mg/m ³ , TWA
	Spain:	3.5 mg/m ³ , TWA
	Sweden - TLV:	3.0 mg/m ³ , TWA
	United Kingdom - WEL:	3.5 mg/m ³ , inhalable TWA (a)
		7.0 mg/m ³ , inhalable STEL
	Brasil:	3.5 mg/m ³ , PEL
	US ACGIH - TLV:	3.5 mg/m ³ , TWA
	US OSHA - PEL:	3.5 mg/m ³ , TWA

Note: Unless otherwise indicated as "respirable" or "inhalable", the exposure limit represents a "total" value. The inhalable exposure limit has been demonstrated to be more restrictive than the total exposure limit, by a factor of approximately 3.

(a) - In its facilities globally, Cabot Corporation manages to the United Kingdom WEL of 3.5 mg/m³ inhalable TWA

INRS: Institut National de Recherche et de Securite (National Institute of Research and Security)

MAC: Maximaal Aanvaarde Concentraties (Maximum allowed concentration)

MAK: Maximale Arbeitsplatzkonzentration (Maximum Workplace Concentration)

PEL: Permissible Exposure Limit

OEL: Occupational Exposure Limit

STEL: Short Term Exposure Limit

TLV: Threshold Limit Value

TRGS: Technische Regeln für Gefahrstoffe (Technical Rule for Hazardous Materials)

TWA: Time Weighted Average

US ACGIH: United States American Conference of Governmental Industrial Hygienists

US OSHA: United States Occupational Safety and Health Administration

VME: Valeur Moyenne d'Exposition (Average Level of Exposure)

WEL: Workplace Exposure Limit

ENGINEERING CONTROLS

Ensure adequate ventilation to maintain exposures below occupational limits. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated, to prevent the escape of dust into the work area.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection:

An approved air-purifying respirator (APR) for particulates may be permissible where airborne concentrations are expected to exceed occupational exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air supplied respirator if there is any potential for uncontrolled release, exposure levels are not known, or any circumstances where air-purifying respirators may not provide adequate protection. Use of respirators must include a complete respiratory protection program in accordance with national standards and current best practices.

The following agencies/organizations approve respirators and/or criteria for respirator programs:

US: NIOSH approval under 42 CFR 84 required.
OSHA (29 CFR 1910.134). ANSI Z88.2-1992 (Respiratory Protection).

EU: CR592 Guidelines for the Selection and Use of Respiratory Protection.

Germany: DIN/EN 143 Respiratory Protective Devices for Dusty Materials.

UK: BS 4275 Recommendations for the Selection, Use and Maintenance of Respiratory Protective Equipment. HSE Guidance Note HS (G)53 Respiratory Protective Equipment.

Hand Protection:

Wear protective gloves to prevent soiling of hands. Use protective barrier cream before handling the product. Wash hands and other exposed skin with mild soap and water.

Eye Protection:

Wear eye/face protection. Safety glasses with side-shields. Goggles.

Skin and Body Protection:

Wear suitable protective clothing. Wash clothing daily. Work clothing should not be allowed out of the workplace.

Other:

Handle in accordance with good industrial hygiene and safety practice. Emergency eyewash and safety shower should be located nearby.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Black Powder or Pellets
Odor:	None
pH:	2 - 4 (oxidized Carbon Black)
Density:	1.7 - 1.9 g/cm ³ @ 20°C
Bulk Density:	200-680 kg/m ³ (Pellets) 20-380 kg/m ³ (Fluffy)
Specific Gravity:	Not determined
Boiling Point/Range:	Not applicable
Melting Point/Range:	Not applicable
Vapor Pressure:	Not determined
Water Solubility:	Insoluble
% Volatile (by Weight):	> 8%
Evaporation Rate:	Not applicable

Viscosity:	Not determined
Partition Coefficient (n-octanol/water):	Not determined
Flash Point:	Not applicable
Method:	Not applicable
Explosion Limits in Air - Upper (g/m³):	Not determined
Explosion Limits in Air - Lower (g/m³):	20 - 50 g/m ³ (dust)
Autoignition Temperature:	> 140°C (transport)
Method:	IMDG-Code
Minimum Ignition Temperature:	620 - 720 °C (BAM Furnace) VDI 2263
Burn Velocity:	> 45 seconds (not classifiable as "Highly Flammable", or "Easily Ignitable")
Flammability Classification:	Not applicable
Dust Explosion Classification:	ST 1 (VDI 2263)
Maximum Absolute Explosion Pressure:	9 bar at an initial starting pressure of 1 bar. Higher starting initial pressures will yield higher explosion pressures.
Method:	VDI 2263
Maximum Rate of Pressure Rise:	200 - 600 bar/sec (Method: VDI 2263 and ASTM E1226-88) 124 Kst (bar. m/s) (Method: VDI 2263)
Minimum Ignition Energy:	> 500 mJ
Method:	VDI 2263

10. STABILITY AND REACTIVITY

Stability:	Stable.
Reactivity:	May react exothermically upon contact with strong oxidizers.
Incompatible Materials:	Strong oxidizers such as chlorates, bromates, and nitrates.
Hazardous Polymerization:	Hazardous polymerization does not occur.
Mechanical Sensitivity (shock):	Not sensitive to mechanical impact.
Conditions to Avoid:	Do not expose to temperatures above 300°C. Keep away from oxidizing agents in order to avoid exothermic reactions.
Hazardous Decomposition and/or Combustion Products:	Carbon monoxide, Carbon dioxide, Oxides of sulphur, Organic products of combustion.
Static Discharge Effects:	Take precautionary measures against static discharges. Avoid dust formation. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Oral LD50: LD50/oral/rat = > 8000 mg/kg.

Eye Irritation: Rabbit. Draize score 10-17/110 @ 24 hr. Non-irritating.

Skin Irritation: Rabbit 0.6/8 Slight irritation

SUBCHRONIC TOXICITY

Rat, inhalation, duration 90 days

NOAEL = 1.0 mg/m³

Target organ: lungs

Effect: inflammation, hyperplasia, fibrosis.

CHRONIC TOXICITY

Rat, oral, duration: 2 years

Effect: no tumors

Mouse, oral, duration: 2 years

Effect: no tumors

Mouse, dermal, duration: 18 months

Effect: no skin tumors

Rat, inhalation, duration: 2 years

Target organ: lungs

Effect: inflammation, fibrosis, tumors

Note: Tumors in the rat lung are related to the fine particle overload phenomenon rather than to a specific chemical effect of the dust particles in the lung. These effects in rats have been reported 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.

Carcinogenic Effects: Carbon Black is listed by IARC (International Agency for Research on Cancer). Does not contain any substances listed by NTP (National Toxicology Program), OSHA (Occupational Safety and Health Administration), ACGIH (American Conference for Governmental Industrial Hygienists) or EU (European Union).

Carbon Black IARC Statement: In 2006 IARC re-affirmed its 1995 classification of carbon black as, Group 2B (possibly carcinogenic to humans).

In 1995 International Agency for Research on Cancer (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 experimental animals for the carcinogenicity of carbon black", resulting in their classifying carbon black as "possibly carcinogenic to humans (Group 2B)".

The U.S. 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 0.1 mg/m³ for PAHs in air, measured as the cyclohexane-extractable fraction.

Epidemiology: Results of epidemiological studies of carbon black production workers suggest that cumulative exposure to carbon black may result in small decrements in lung function. A recent U.S. respiratory morbidity study suggested a 27 ml decline in FEV1 from a 1 mg/m³ (inhalable fraction) exposure over a 40-year period. An older European investigation suggested that exposure to 1 mg/m³ (inhalable fraction) of carbon black over a 40-year working lifetime would result in a 48 ml decline in FEV1. However, the estimates from both studies were only of borderline statistical significance. Normal age-related decline over a similar period of time would be approximately 1200 ml.

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. This 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 UK (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. Thus, the authors did not consider the increased risk in lung cancer to be due 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 US study (Dell et al. 2006) of 18 plants showed a reduction in lung cancer risk in carbon black production workers. Based upon these studies, the February 2006 Working Group at IARC concluded that the human evidence for carcinogenicity was inadequate (Baan et al. 2006).

Since this IARC evaluation of carbon black, Sorahan and Harrington (2007) re-analyzed the UK 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 and, 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 risk in humans has been demonstrated. This view is consistent with the IARC evaluation in 2006.

OTHER

Mutagenic Effects:

In Vitro

Carbon black is not suitable to be tested in bacterial (Ames test) and other in vitro systems because of its insolubility. When tested, however, results for carbon black showed no mutagenic effects. Organic solvent extracts of carbon black can, however, contain traces of polycyclic aromatic hydrocarbons (PAHs). A study to examine the bioavailability of these PAHs showed that PAHs are very tightly bound to carbon black and not bioavailable.

In Vivo

In an experimental investigation, 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" which led to chronic inflammation and release of oxygen species. (see Chronic toxicity above). This is considered to be a secondary genotoxic effect and, thus, carbon black itself would not be considered to be mutagenic.

Reproductive Toxicity: Did not show effects in animal experiments.

Sensitizing Effects: Contains no known sensitizers.

Synergistic Materials: None reasonably foreseeable.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity:

Fish (*Brachydanio rerio*): LC50 (96hr) > 1,000 mg/L. (Method: OECD 203).
Daphnia magna: EC50 (24hr) > 5,600 mg/L. (Method: OECD 202).
Algae (*Scenedesmus subspicatus*): EC50 (72hr) > 10,000 mg/L.
Algae (*Scenedesmus subspicatus*): NOEC >= 10,000 mg/L.
Activated sludge: EC0 (3hr) >= 800 mg/L. (Method: DEV L3 TTC test).

ENVIRONMENTAL FATE

Mobility:	Not expected to migrate. Insoluble.
Bioaccumulation:	Not expected due to physicochemical properties of the substance.
Persistence / Degradability:	Not expected to degrade
Distribution to Environmental Compartments:	Insoluble. Expected to remain on soil surface.

13. DISPOSAL CONSIDERATIONS

Disclaimer: Information in this section pertains to the product as shipped in its intended composition as described in Section 3 of this MSDS. Contamination or processing may change waste characteristics and requirements. Regulations may also apply to empty containers, liners or rinsate. State/provincial and local regulations may be different from federal regulations.

EWC Waste Disposal No: EU Waste Code No. 61303 per Council Directive 75/422/EEC.

14. TRANSPORT INFORMATION

The following organizations do not classify carbon black as a "hazardous cargo" if it is "carbon, non-activated, mineral origin". Cabot carbon blacks meets this definition.

- Canadian Transport of Dangerous Goods Regulation
- European Transport of Dangerous Goods Regulation
- GGVS, GGVE, RID, ADR, IMDG Code, ICAO-TI
- United Nations (no UN number)
- US Department of Transportation

UN Number:	None
UN Proper Shipping Name:	Not classified
UN Shipping Class:	Not classified
UN Packing Group:	Not classified
International Transportation Identification:	"Carbon black, non-activated, mineral origin". Not dangerous according to IMDG-Code. Not dangerous according to ICAO-TI.
US Rail Regulations:	Not classified

Additional Information:

Seven (7) ASTM reference carbon blacks were tested according to the UN method, Self Heating Solids, and found to be "Not a self-heating substance of Division 4.2"; the same carbon blacks were tested according to the UN method, Readily Combustible Solids, and found to be "Not a readily combustible solid of Division 4.1"; under current UN Recommendations on the Transport of Dangerous Goods.

15. REGULATORY INFORMATION**Indication of danger:**

Not a hazardous substance or preparation according to the Global Harmonized System (GHS).

15. REGULATORY INFORMATION

EU Food Contact Information

This product may be acceptable for applications coming in contact with food. However, due to national regulation variations within the European Union, the applicable laws of each member state should be consulted. Please contact your Cabot area sales manager for more specific information.

US Food Contact Information

Carbon black is permitted for indirect contact with food and drugs when used as a filler in rubber articles intended for repeat use under 21 CFR (Code of Federal Regulations) 177.2600.

LIMITATIONS:

- Total carbon black (channel process and furnace process) in the rubber may not exceed 50% by weight of the rubber products. Cabot carbon blacks are furnace process blacks.

- Furnace process black content may not exceed 10% by weight of rubber product intended for use in contact with milk or edible oils.

Pharmaceutical Use

Not permitted.

Cosmetic Use:

Cabot Corporation does not support the use of this product in any cosmetic application

California Proposition 65:

"carbon black (airborne, unbound particles of respirable size)" is a California Proposition 65 listed substance. Please note that all three listing qualifiers (airborne, unbound (not bound within a matrix), and respirable size (10 micrometers or less in diameter)) must be met for this substance to be considered a Proposition 65 substance. Please contact your sales representative for additional information.

International Inventories

All components of this product are listed on or exempt from the following inventories:

- YES - Australian Inventory of Chemical Substances (AICS)
- YES - Canadian Domestic Substances List (DSL)
- YES - Chinese Inventory
- YES - European Inventory of Existing Commercial Chemical Substances (EINECS)
- YES - Japanese Existing and New Chemical Substances (ENCS)
- YES - Korean Existing Chemicals List (KECL)
- YES - New Zealand Hazardous Substances and New Organisms Act (HSNO)
- YES - Philippine Inventory of Chemicals and Chemical Substances (PICCS)
- YES - United States Toxic Substances Control Act (TSCA) Inventory

Germany Water Endangering Class (WGK) Class

Chemical Name

Carbon Black nwg (not water endangering): 1742

Switzerland Giftklasse (Poison Class) Toxic Category

Chemical Name

Carbon Black -- (tested and found to be not toxic): G-8938

16. OTHER INFORMATION**Carbon Black Extracts:**

Manufactured carbon blacks generally contain less than 0.1% of solvent extractable polycyclic aromatic hydrocarbons (PAH). Solvent extractable PAH content depends on numerous factors including, but not limited to, the manufacturing process, desired product specifications, and the analytical procedure used to measure and identify solvent extractable materials. Questions concerning PAH content of carbon black and analytical procedures should be addressed to your carbon black supplier.

General Information:

The carbon black industry continues to sponsor research designed to identify adverse health effects from long term exposure to carbon black. This MSDS will be updated as new safety and health information may become available

EU Local Contacts:

Cabot Italiana S. P. A.
Via Baiona, 190
48100 Ravenna
ITALY
Tel: 39 (0544) 519511
Fax: 39 (0544) 451946/451944

Cabot Carbone
Route Departementale 173
B. P. 24
76170 Lillebonne
FRANCE
Tel: 33 (2) 35 394 400
Fax: 33 2 35 399 701

Cabot B. V.
Botlekstraat 2
3197 KA Botlek Rt.
NETHERLANDS
Tel: 31 (181) 291888
Fax: 31 (181) 291783

CS Cabot Spol S. R. O.
Masarykova 753
75727 Valasske Mezirici
CZECH REPUBLIC
Tel: +420 (651) 681 111
Fax: +420 (651) 611 205

Shanghai Cabot Chemical Co. Ltd.
15 Shuangbai Lu
Wujing, Shanghai 201108
CHINA
Tel: +86 21 6434 7766
Fax: +86 21 6434 0002

Prepared by:

Cabot Corporation - Safety, Health and Environmental Affairs

Revision Date:**Previous Revision Date:**

None

Reason for Revision:

New format

Disclaimer:

The information set forth is based on information that Cabot Corporation believes to be accurate. No warranty, expressed or implied, is intended. The information is provided solely for your information and consideration and Cabot assumes no legal responsibility for use or reliance thereon. In the event of a discrepancy between the information on the non-English document and its English counterpart, the English version shall supersede.

® and 'TM' indicate trademarks of the Cabot Corporation.