



MATERIAL SAFETY DATA SHEET

MSDS NO. 226

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Revision Date: May 2005

PRODUCT: Graphite Electrode with Connecting Pin and Pitch Plug

I IDENTIFICATION

CHEMICAL FAMILY: Carbon

II INGREDIENTS (INERT & HAZARDOUS)

SYNTHETIC GRAPHITE: Nuisance Dust, Total Dust & Respirable Dust (if generated):

<u>Exposure Limit</u>	<u>Units</u>	<u>Agency</u>	<u>Type</u>
10.00	mg/m ³	ACGIH	TWA-TOTAL DUST
3.00	mg/m ³	ACGIH	TWA-RESPIRABLE DUST
15.00	mg/m ³	OSHA	TWA-TOTAL DUST
5.00	mg/m ³	OSHA	TWA-RESPIRABLE DUST

INGREDIENTS/COMPOSITION	CAS#	PERCENT	PEL	TLV	PEL
Synthetic Graphite	7482-42-5	> 99	10mg/m ³ Total Dust	10mg/m ³ Total Dust	5mg/m ³ Resp. Dust

*Coal Tar Pitch 65966-93-2 < 0.10 0.2mg/m³ 0.2mg/m³

As Coal Tar Pitch Volatiles (CTPV< benzene soluble fractions)

* Indicates those materials that appear on one of OSHA's Carcinogen lists. (See Section IX, Special Precautions)

III PHYSICAL DATA

SOFTENING POINT: Coal Tar Pitch, 108 – 113°C

SUBLIMATION POINT: Graphite solid 5500°F

EVAPORATION RATE: Negligible

SOLUBILITY IN WATER: Insoluble

APPEARANCE: Grey/black solid, particulate composite

VOLATILE BY WEIGHT: < 0.1%

Specific Gravity: 1.4 – 1.9

VAPOR DENSITY: NA

VAPOR PRESSURE: <<0.01 mm Hg

ODOR: None

IV FIRE AND EXPLOSION DATA

FLASH POINT: Synthetic Graphite does not flash; Coal Tar Pitch 150 – 200°C

LOWER/UPPER EXPLOSIVE LIMIT: NA

EXTINGUISHING MEDIA: Water, CO₂, Sand

HAZARDOUS DECOMPOSITION PRODUCTS: In ordinary combustion, carbon monoxide and carbon dioxide can be formed. Upon heating, a small fraction of the less than 0.1% Coal Tar Pitch may be released as CTPV but is more likely to evolve as CO, CO₂, and light hydrocarbons.

SPECIAL FIREFIGHTING PROCEDURES: Use self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION DATA: Graphite dust is normally not explosive, but it may contribute if ever initiated by another explosive dust or gas. Graphite is electrically conductive and dust accumulations may cause electrical short circuits or other electrical malfunctions.

V HEALTH HAZARD DATA

PRIMARY ROUTE OF EXPOSURE: Inhalation of graphite dust, coal tar pitch fumes, and pitch dust.

EFFECTS OF OVEREXPOSURE:

EYES: At high dust or fume levels, irritation.

BREATHING: Prolonged and repeated over exposure may lead to benign pneumoconiosis.

SKIN OR SWALLOWING: No effect generally expected.

FIRST AID:

EYES: Flush with plenty of water for at least 15 minutes. Seek medical attention if irritation persists.

SKIN: Wash thoroughly with soap and water. If clothing is contaminated, wash before reuse.

SWALLOWING: Give plenty of water to drink. Seek medical attention. Caution: never give anything by mouth to an unconscious person.

VI REACTIVITY DATA

HAZARDOUS POLYMERIZATION: Will not occur

STABILITY: Stable

INCOMPATIBILITY: (MATERIALS TO AVOID) None known

VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED.

Clean up as for normal housekeeping requirements.

WASTE DISPOSAL METHOD: Dispose in an approved landfill or reclaim.

DISPOSAL MUST BE IN COMPLIANCE WITH FEDERAL, STATE & LOCAL LAWS & REGULATIONS

VIII PROTECTIVE EQUIPMENT TO BE USED

VENTILATION: Local ventilation is recommended if exposure exceeds PEL.

RESPIRATORY PROTECTION: If airborne concentrations exceed established exposure limits, a suitable filter type respirator should be worn.

PROTECTIVE GLOVES: Not normally required.

EYE PROTECTION: Use approved protection to safeguard against potential eye contact, irritation or injury

IX SPECIAL PRECAUTIONS OR OTHER COMMENTS

Coal tar pitch at less than 0.1% by weight in the electrode assembly is used in the connecting pin. In normal handling, coal tar pitch will not be accessible for hazardous contact by user. If the electrode is heated in other than the intended furnace environment, coal tar pitch volatiles (CTPVs) could be released. If the connecting pin is removed and cut or ground, pitch dust could be released. Such circumstances are unlikely, but are mentioned since coal tar pitch and coal tar pitch volatiles have been implicated as human carcinogens by the NTP and IARC. Coal tar pitch can cause photosensitivity.

X REFERENCES

ACGIH	Threshold Limit Values, Current Edition
NIOSH	Occupational Health Guidelines
OSHA	29 CFR 1910.1000

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