

K-0963-042 (7/91)
ISSUE DATE 10/91

DATE PREPARED: 10/85
SUPERCEDES: 9/89

IDENTIFICATION

PRODUCT NAME: K090

CHEMICAL NAME: Aluminum Oxide with Titanium Carbide

CHEMICAL FAMILY: Metal Oxide with Refractory Metal Carbide

SYNONYMS: Ceramic, Alumina

MOLECULAR FORMULA: Mixture

INGREDIENTS

MATERIAL	C.A.S. NUMBER	% BY WEIGHT	OSHA TLV-TWA (mg/m ³)	ACGIH TLV-TWA (mg/m ³)	NFPA HAZARD RATING SCALE 0-4		
					HEALTH	FIRE	REACTIVITY
*ALUMINUM OXIDE	1344-28-1	60.0-95.0	5	10	No NFPA Rating	0	0
*TITANIUM CARBIDE	12070-08-5	5.0-40.0	5	None Established	No NFPA Rating	0	0

* Identifies substances that are subject to the requirements of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

PHYSICAL DATA

DESCRIPTION
Gray powder or solid

RELATIVE DENSITY (H₂O = 1)
4.0 to 5.0

SOLVENT SOLUBILITY
Practically insoluble

BOILING POINT
2980°C (5396°F)

**VAPOR DENSITY (AIR = 1)
AT AMBIENT TEMP.**
Not measurable

**PERCENT VOLATILES
BY VOLUME**
Not measurable

MELTING POINT
2072°C (3762°F)

SOLUBILITY IN WATER
Practically insoluble

EVAPORATION RATE
Negligible

EMERGENCY PHONE NUMBERS

Chemtrec 800-424-9300

FIRE AND EXPLOSION HAZARD DATA

FIRE AND EXPLOSION HAZARDS

Finely divided ceramic powder or dust from grinding is expected to be a fire and explosion hazard when exposed to high temperatures or ignition sources. Particle size and dispersion in air determine reactivity. Ceramic product, except as powder or dust, is not a fire hazard.

FLASH POINT

Not determinable.

FIRE FIGHTING MEDIA

For localized powder fires, smother with dry sand, dry dolomite, sodium chloride or soda ash.

SPECIAL FIREFIGHTING PROCEDURES

Move container from fire area if possible. Cool containers exposed to flame with water from side until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles; or withdraw and let fire burn. Avoid breathing fumes from burning material. Firefighting personnel must use proper respiratory protection.

REACTIVITY

STABILITY

Stable under normal temperatures and pressure.

INCOMPATIBILITIES

Aluminum Oxide With:

Chlorine Trifluoride: May react violently with possible flame.
Ethylene Oxide: May polymerize violently in contact with aluminum oxide.

DECOMPOSITION

Thermal decomposition may release acrid smoke and irritating fumes.

POLYMERIZATION

Not known to occur.

TOXICITY

WARNING

Overexposure to this material in the form of powder, dust or mist from grinding or sweeping is hazardous to health. May cause eye, skin, and mucous membrane irritation. May cause temporary or permanent respiratory disease. Permanent respiratory disease can lead to disability or death. Certain pulmonary and skin conditions may be aggravated by exposure.

Carcinogenic status: This material has not been identified as a known or suspected carcinogen.

Aluminum Oxide: May irritate skin and mucous membranes. Prolonged exposure may affect the lungs. Persons with a history of chronic respiratory disease may be at increased risk with exposures.

Titanium Carbide: May cause mucous membrane irritation.

ROUTES OF EXPOSURE/HEALTH EFFECTS AND FIRST AID

INHALATION

Irritant/Sensitizer: Inhalation in the form of metallurgical powder, dust or mist from grinding may cause irritation of the nose and throat.

● ACUTE OVEREXPOSURE

Aluminum Oxide: May cause bronchial irritation, coughing, dyspnea.

Titanium Carbide: May be considered a nuisance dust and may result in dust accumulation in the lungs.

● CHRONIC OVEREXPOSURE

Aluminum Oxide: May cause pulmonary fibrosis, bronchitis, emphysema, and pneumonia. Occasionally, individuals exposed to aluminum fumes suffer severe pulmonary reactions including fibrosis, emphysema and pneumothorax. Rarely, encephalopathy has been reported.

Titanium Carbide: May cause fibrosis and pneumoconiosis.

● FIRST AID

If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath) remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Get medical attention immediately.

SKIN CONTACT

Irritant/Sensitizer: In the form of ceramic powder, dust or mist from grinding.

● ACUTE OVEREXPOSURE

Aluminum Oxide: May cause mild irritation.

Titanium Carbide: None reported in humans.

● CHRONIC OVEREXPOSURE

Aluminum Oxide: May cause dermatitis.

Titanium Carbide: None reported in humans.

● FIRST AID

If irritation or rash occurs, remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of material remains (approximately 15-20 minutes). Get medical attention.

EYE CONTACT

Irritant.

● ACUTE OVEREXPOSURE

Aluminum Oxide: May cause irritation, redness, and pain.

Titanium Carbide: None reported in humans.

● CHRONIC OVEREXPOSURE

Aluminum Oxide, Titanium Carbide: May cause conjunctivitis.

● FIRST AID

If irritation occurs, wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of material remains (approximately 15-20- minutes). Get medical attention immediately.

INGESTION

Irritant: In the form of ceramic powder, dust, or mist from grinding.

● ACUTE OVEREXPOSURE

Aluminum Oxide: May cause nausea, vomiting, and weakness.

Titanium Carbide: Systemic poisoning not known to occur.

● CHRONIC OVEREXPOSURE

Aluminum Oxide: May cause constipation. Aluminum is poorly absorbed, but individuals with impaired renal function may accumulate the metal in tissues. High levels of aluminum in the brain have been associated with senility and Alzheimer's disease.

Titanium Carbide: Not known in humans.

● FIRST AID

If this material has been swallowed and person is conscious, immediately give person large amounts of water. After water has been swallowed, induce vomiting. Do not attempt to make an unconscious person drink or vomit. Get medical attention immediately.

SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Sweep up with a minimum of dust generation and place into suitable clean, dry containers for later disposal or reclamation. Residue should be cleaned up using a high-efficiency particulate filter vacuum or wet clean up. Use appropriate respiratory protection.

WASTE DISPOSAL METHOD

This is a valuable material that should be sent to an appropriate reclamation facility if available. If material cannot be sent to a reclamation facility, disposal should be made in compliance with federal, state and local environmental regulations.

CONTROL MEASURES AND PROTECTIVE EQUIPMENT

VENTILATION

Provide local exhaust ventilation or general dilution ventilation to maintain exposure levels below TLV-TWA.

RESPIRATORY PROTECTION

High levels — High-efficiency particulate respirator with a full facepiece. Supplied-air respirator with a full facepiece, helmet or hood. Self-contained breathing apparatus with a full facepiece.

● FIREFIGHTING

Self-contained breathing apparatus with a full facepiece, operated in pressure-demand or other positive-pressure mode.

CLOTHING

Protective clothing not required, however, avoid repeated or prolonged contact with this substance.

GLOVES

Protective gloves are not required but recommended.

EYE PROTECTION

Safety glasses with side shields or goggles are recommended. Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye-wash fountain within the immediate work area for emergency use. Contact lenses should not be worn when using or reprocessing these materials.

SPECIAL PRECAUTIONS

HANDLING AND STORAGE

Minimize free fall of powder and avoid dispersion of dust in air. Finely divided particles, dust, or fumes may be flammable or explosive. Keep away from sparks or ignition sources. Contents should be stored in a clean, dry, cool area.

OTHER PRECAUTIONS

Wash hands thoroughly after handling, before eating or smoking. Do not shake clothing, rags or other items to remove dust. Dust should be removed by washing or vacuuming. Periodic medical examinations are recommended for individuals regularly exposed to dust or mist.

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For free powder handling or metalcutting safety booklets write: **Kennametal Inc., Attn: Safety Coordinator, P.O. Box 231, Latrobe, PA 15650**
For additional information contact Health, Safety and Environmental Affairs Manager, **Telephone: 412-539-5157, FAX: 412-539-5372.**

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