

# Refractories, Plastics, Insulation or Textiles Containing Chromium Compounds

## Purpose

The original version of this Plant Service Bulletin (PSB-43) was issued in April of 1990 to alert owners and operators of boilers and steam generators that certain materials containing chromium may, under certain operating conditions, produce hexavalent chromium (Cr+6), a carcinogen. It also suggested remedial action and substitute materials.

The initial issue of PSB-43 pertained only to chromium-containing refractories. This updated bulletin includes other materials containing chrome such as plastics, insulation, and textiles.

## Problem

The U.S. Environmental Protection Agency (EPA) has determined that hexavalent chromium is a carcinogen. Some refractories and other materials that have been used in boilers may contain chromium compounds as part of the mixture or composition. During operation, some of the chromium compounds may be converted to hexavalent chromium. When the material is removed from the boiler, the dust created may transport the hexavalent chromium. Inhaling hexavalent chromium increases the risk of lung cancer in humans and may also cause other health hazards.

## Suggested Action

Determine whether the chromium-containing refractory, or other chromium materials, are present in the boiler. When in doubt as to whether the material contains chromium compounds or whether the chromium compounds have been converted to hexavalent chromium, the materials should be tested by a qualified, independent test laboratory prior to removal. If such materials are present:

1. Provide the proper training, education, equipment, and monitoring to any personnel who will be in contact with the chromium-containing compounds. Follow OSHA and EPA regulations governing the type of personnel protection required, including equipment.

2. Never breathe the dust or allow the dust to contact the skin when removing or repairing the refractory or material. Follow OSHA guidelines as to the type of equipment to be used.
3. Dispose of the refractory or material waste only in accordance with EPA regulations for the identification and disposal of hazardous waste – generally 40 CFR part 240, et seq., and specifically 40 CFR Parts 261 and 262.

The following is a partial list of the most commonly used generic and brand names of chromium-containing refractories and plastics used in Babcock & Wilcox boilers:

Chrome Ore	Green PC
Chrome Mortar	Krom Ram
Plastic Chrome Ore	Fran Reco Chrome
Kromight Gun	Narco Chrome
Kromight	Basicrete HS
Hydrochrome	Emerald Ram Mix
Kromecast	Emerald Ram
Kromalox	Emerald Ram HS Plastic
Shamrock	Emerald Ram TR Plastic
Jade Pak	Quick Ram ER Ram
A.P. Green 3000	Sure-fire ER PLST
Alchrome	Gunning Mix
Monochrome	Moldit Chrome Castable

The following is a list of most commonly used generic and brand names of chromium-containing insulation and textile products used in Babcock & Wilcox boilers:

Cerachrome	Ceraform 130
Z-Blok	Cerachrome Felt

**NOTE: The lists stated here are not complete, but do represent the most commonly used products.**

Other generic and brand name chromium-containing products may have been used in your boiler. Your

*(continued on reverse side)*

maintenance, purchasing and supplier records, as well as the brickwork, refractory, insulation and lagging specifications, should be reviewed to determine whether and where chromium-containing products were installed at the time the boiler was sold. The Babcock & Wilcox Company cannot determine the applications of chrome products after boiler operation, since retrofits are likely to occur during the life of the boiler.

Substitutes for chromium-containing products are available, but they sometimes have a shorter life span. Also, a substitute that works in one application may not work in another application, or the life span is significantly reduced. New substitutes are being

tested which may have a life span equal to the present chromium products.

If you need additional help identifying the locations in your boiler where chromium-containing products may be located, refer to the original installation drawings.

### Support

Contact Babcock & Wilcox Field Service Engineering for alternate refractories, or if you have any questions or require further assistance in identifying locations where chromium-containing products may be found.

### For more information...

**In the U.S., call 1-800-BABCOCK (222-2625) or fax (216) 860-1886 (Barberton, Ohio). Outside the U.S., call (519) 621-2130 or fax (519) 621-2142 (Cambridge, Ontario, Canada). In Mexico, call (5) 208-1906 or fax (5) 533-5550. Or contact your nearest B&W sales or service office worldwide.**

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## SAFETY DATA SHEET

Following Regulation 1910.1200

SDS Number: 257      Date of first issue: 01 September 1990      Date of last revision: 23 December 2020

### 1 - Identification of product

#### a - Product identifier used on the label

Tradenames [REDACTED]

#### b - Other means of identification

REFRACTORY CERAMIC FIBER PRODUCT

#### c - Recommended use of the chemical and restrictions on use

**Primary Use** Refractory Ceramic Fiber (RCF) materials are used primarily in industrial high temperature insulating applications. Examples include heat shields, heat containment, gaskets, expansion joints, industrial furnaces, ovens, kilns, boilers and other process equipment at applications up to 1400°C. RCF based products are not intended for direct sale to the general public. While RCFs are used in the manufacture of some consumer products, such as catalytic converter mats and wood burning stoves, the materials are contained, encapsulated, or bonded within the units.

**Secondary Use** Conversion into wet and dry mixtures and articles (refer to section 8) **Tertiary Use** Installation, removal (industrial and professional) / Maintenance and service life (industrial and professional) (refer to section 8).

**Uses Advised Against** Spraying of dry product.

#### d - Name, address, and telephone number

[REDACTED]

#### e - Emergency Phone Number

[REDACTED]

For additional SDSs and to confirm this is the most current SDS for the product, visit our web page [www.morganthermalceramics.com](http://www.morganthermalceramics.com) or send a request to [REDACTED]

### 2 - Hazard Identification

#### a - Classification of the chemical in accordance with paragraph (d) of §1910.1200

The U.S. Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HCS) 2012 indicates that IARC Group 2B corresponds to OSHA HCS 2012 Category 2 carcinogen classification (see, e.g., §1910.1200, Appendix F, Part D).

#### b - Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200

Under OSHA HCS 2012, RCF is classified as GHS category 2 carcinogen.

#### Hazard Pictograms



#### Signal Words

Warning

#### Hazard Statements

Suspected of causing cancer by inhalation.

#### Precautionary Statements

Do not handle until all safety instructions have been read and understood.  
Use respiratory protection as required; see section 8 of the Safety Data Sheet.  
If concerned about exposure, get medical advice.  
Store in a manner to minimize airborne dust.  
Dispose of waste in accordance with local, state and federal regulations.

#### Supplementary Information

May cause temporary mechanical irritation to exposed eyes, skin or respiratory tract.  
Minimize exposure to airborne dust.

#### Emergency Overview

#### c - Describe any hazards not otherwise classified that have been identified during the classification process

Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure.  
These effects are usually temporary.

#### d - Mixture Rule

Not applicable.

### 3 - Composition / Information On Ingredients

#### a - Composition table

COMPONENTS	CAS NUMBER	% BY WEIGHT
Refractories, Fibers, Aluminosilicate	142844-00-6	45 - 80
Chromium (III) Oxide	1308-38-9	Up to 3
Silica Amorphous	7631-86-9	5 - 30
Clay	1302-76-7	5 - 25
Starch	9005-25-8	3 - 6

#### b - Common Name

(See Section 8 "Exposure Controls / Personal Protection" for exposure guidelines)

#### d - Impurities and Stabilizing Additives

### 4 - First-Aid measures

#### a - Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion

##### Eyes

If eyes become irritated, flush immediately with large amounts of lukewarm water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Do not rub eyes.

##### Skin

If skin becomes irritated, remove soiled clothing. Do not rub or scratch exposed skin. Wash area of contact thoroughly with soap and water. Using a skin cream or lotion after washing may be helpful.

##### Respiratory Tract

If respiratory tract irritation develops, move the person to a dust free location. See Section 8 for additional measures to reduce or eliminate exposure.

##### Gastrointestinal

If gastrointestinal tract irritation develops, move the person to a dust free environment.

#### c - Indication of immediate medical attention and special treatment needed, if necessary

### 5 - Fire-fighting measures

#### a - Suitable (and unsuitable) extinguishing media and

Use extinguishing media suitable for type of surrounding fire

#### c - Special Protective Equipment and Precautions for Firefighters

NFPA Codes: Flammability: 0 Health: 1 Reactivity: 0 Special: 0

#### b - Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products)

None

### 6 - Accidental Release Measures

#### a - Personal precautions, protective equipment, and emergency procedures

Minimize airborne dust. Compressed air or dry sweeping should not be used for cleaning. See Section 8 "Exposure Controls / Personal Protection" for exposure guidelines.

#### b - Methods and materials for containment and cleaning up

Pick up large pieces and dispose in a closed container. Follow precaution stated in above section for clean up.

### 7 - Handling and storage

#### a - Precautions for safe handling

Handle fiber carefully to minimize airborne dust. Limit use of power tools unless in conjunction with local exhaust ventilation. Use hand tools whenever possible.

#### b - Conditions for safe storage, including any incompatibilities

Store in a manner to minimize airborne dust.

#### c - empty containers

Product packaging may contain residue. Do not reuse.

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REACH

## Refractories, fibers, aluminosilicate

EC number: - | CAS number: 142844-00-6



### Substance identity

#### Identification

Display Name:	dioxosilane;oxo(oxoalumanyloxy)alumane - Amorphous glass fibre produced from silica dioxide and aluminium oxide and a range of oxides such as zirconia, ferric oxide, titanium oxide, magnesiumoxide, calcium oxide, other alkaline earth oxides including sodium oxide, potassium oxide, barium oxides
CAS Number:	142844-00-6
Molecular formula:	amorphous glass $\text{Si}(n)\text{O}(3n+1)$ polymeric anions bonded to Zr and Al(3+)
IUPAC Name:	dioxosilane;oxo(oxoalumanyloxy)alumane - Amorphous glass fibre produced from silica dioxide and aluminium oxide and a range of oxides such as zirconia, ferric oxide, titanium oxide, magnesiumoxide, calcium oxide, other alkaline earth oxides including sodium oxide, potassium oxide, barium oxides

#### Type of Substance

Composition:	UVCB
Origin:	inorganic

#### Substance Identifiers

##### Trade name

