

TEST ANSWERS: REFRACTORY CERAMIC FIBRES (RCFs)

The *BSO Plus Safety Topic* is a review designed from the BSO Plus agenda. This safety topic is your way to stay current on the safety information over the 3 years between BSO Plus and BSR.

1. Refractory Ceramic Fibres (RCFs) are man-made mineral fibres. In bulk form, RCFs are:

- a. Blue and red fibrous material
- b. White or grey fibrous material
- c. Turned into a blue liquid used for coatings
- d. None of the above

RATIONALE: In bulk form, RCFs are white or grey fibrous material, but they can also be manufactured into blanket form or even mixed into solid cast products. RCFs are commonly used in the steel, petrochemical, aerospace, and automotive industries. At temperatures above 1,000°C, RCFs can be transformed into crystalline silica (cristobalite).

2. RCFs are considered a “probable” or “suspected” human carcinogen.

- a. True
- b. False

RATIONALE: The amount, size, and durability of RCFs will determine how the body is affected. Short-term health effects include coughing, sneezing, and temporary irritation of skin, eyes, and nose. Higher exposure may cause difficulty breathing, coughing, and chest tightness. Although there is no conclusive proof that RCFs can lead to cancer in humans, both the Canadian Environmental Protection Agency and the American Conference for Governmental Industrial Hygienists list RCFs as “probable” and “suspected” human carcinogens respectively.

3. The greatest risk of exposure to RCFs is through: (Circle all that apply)

- a. Skin contact
- b. Inhalation
- c. Ingestion
- d. Injection

RATIONALE: Along with the skin, eye, and respiratory effects caused by exposure to RCFs, there is also a concern that the individual fibres are small enough to penetrate deep into the lungs and possibly lead to the development of lung cancer, mesothelioma, or silicosis. When working with RCFs, the greatest risk of exposure is due to inhalation of fibres and/or dust.

4. The best way to protect yourself from exposure to RCFs is by knowing where they are used in your workplace and wearing the appropriate personal protective equipment.

- a. True
b. False

RATIONALE: Although there is no conclusive proof that RCFs can lead to cancer in humans, both the Canadian Environmental Protection Agency and the American Conference for Governmental Industrial Hygienists (ACGIH) list RCFs as “probable” and “suspected” human carcinogens respectively. The best course of action is to take reasonable precautions for your own safety.

5. Refractory Ceramic Fibres (RCFs) may be found in: (Circle all that apply)

- a. Gaskets and seals
b. Furnace liners
c. Thermal insulation in industrial boilers
d. All of the above

RATIONALE: RCFs are widely used to replace asbestos in applications requiring high heat resistance, such as: thermal insulation in industrial boilers, high temperature pipe and vessel insulation, furnace liners and heating element supports, high temperature gaskets and seals. RCFs are commonly used in the steel, petrochemical, aerospace, and automotive industries.