

## Common Questions and Recommended Handling Guidelines for CC-Max<sup>®</sup> Substrate Support Mat Systems

The Unifrax Corporation has been providing catalytic converter support mats to the Automotive Market since the early 1980s. As one of the world's largest producers of refractory ceramic fiber, Unifrax is the leader in Product Stewardship. We are committed to helping our customers use our products properly.

The following presents recommended handling guidelines for the CC-Max<sup>®</sup> family of substrate support mat systems.

### 1. What are Support Mat Systems?

CC-Max Substrate Support Mat Systems are a revolutionary non-intumescent material specifically developed by Unifrax Corporation for mechanical support of ceramic substrates used in catalytic converters. Unifrax has successfully developed a high-performance fiber, utilizing melt fiberization technology. The family of CC-Max products are produced when the fiber is converted into various flexible felt products.

### 2. How are CC-Max products different from other mat mount products?

Traditional intumescent mount mat systems contain a blend of refractory ceramic fiber (RCF) and vermiculite. In contrast, CC-Max products do not contain any vermiculite. CC-Max products are non-intumescent and contain 100% specially processed, high-temperature refractory ceramic fibers.

### 3. Should CC-Max Support Mat Systems be treated differently than other mat mount systems?

As with any fiber-based mat mount system, the potential exists to generate airborne fibers and dust. To date, studies of RCF workers have not shown any clinically significant long-term health effects attributed to exposure to RCF. Refractory ceramic fibers (RCF) may be irritating to the skin, eyes and respiratory tract (nose, throat and lungs). The mild, mechanical irritation is usually temporary (related to exposure) and, with most individuals, sensitivity tends to decrease with time.

### 4. What causes the irritation?

Irritation is related to fiber size and the amount of material that comes in contact with your skin. Fiber irritation is a physiological skin sensation due to mechanical irritation and is *not* a chemical reaction. "Limiting contact with fibers" is the best strategy for reducing irritation.

### 5. How can I "limit contact with fibers"?

Careful handling practices, engineering and process controls, and the use of personal protective equipment can effectively reduce or eliminate fiber-related irritation.

The evaluation of any workplace environment and the identification of appropriate control measures is best performed on a case-by-case basis by an Industrial Hygienist or other qualified individual. In the absence of a specific workplace evaluation, we recommend that the general handling practices described in this bulletin and the product material safety data sheet be closely followed.

### 6. What are the general handling procedures? What are the workplace procedures that can be used to eliminate potential fiber-related irritation?

To reduce or eliminate potential fiber-related irritation, the following procedures and work practices should be followed closely when working with RCF materials:

#### **HANDLE PRODUCTS CAREFULLY TO MINIMIZE DUST GENERATION.**

- 1) Keep all material in its packaging as long as practicable.
- 2) Tools and handling techniques that generate the least amount of dust should be used whenever possible. If automated equipment is used, it should be equipped with appropriate dust collection systems.
- 3) Practice good housekeeping procedures. To the extent practicable, keep work areas clean and free of scrap RCF material.

- 4) Employ good work practices to minimize the creation of airborne dust. Vacuum with HEPA filtered equipment (or equivalent). If sweeping is necessary, use a dust suppressant and place material in closed containers. Do not use compressed air for clean-up purposes.
- 5) Clean equipment periodically to remove settled RCF dust. Use a HEPA filtered vacuum or equivalent (where possible) or wipe the surface clean with a wet rag to remove excess dust and loose fibers.
- 6) Avoid unnecessary handling of scrap materials to prevent fiber release. Where practicable, the use of covered disposal containers is recommended.

**7. What personal protection steps can be taken to eliminate potential fiber-related irritation?**

**TO REDUCE OR ELIMINATE SKIN IRRITATION, WEAR APPROPRIATE CLOTHING.**

- 1) Some individuals develop temporary mechanical skin irritation (which is based on fiber shape – not a chemical interaction) when exposed to RCF-containing products. Skin irritation can be avoided by preventing RCFs from coming in contact with the skin. When irritation is of concern, wear long-sleeved, loose-fitting clothing, gloves and head covering to reduce or prevent skin contact.
- 2) Remove RCF dust from work clothes, with a HEPA-filtered vacuum or other effective method, before leaving the work area.
- 3) The use of laundered (or disposable) work clothing, designating an area to change out of work clothing and making shower facilities available may also be helpful. Employees should be trained on the best practices to minimize or avoid nonwork dust exposure (e.g., vacuum clothing, wash work clothing separately, rinse washer before washing other household clothes, etc.).

**TO REDUCE EYE AND UPPER RESPIRATORY TRACT IRRITATION, WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.**

- 1) To minimize upper respiratory tract irritation, measures should be taken to control exposure to airborne fiber. Such measures will be dictated by the work environment and may include appropriate respiratory protective equipment. Follow applicable regulatory standards.
- 2) Safety glasses with side shields or other forms of eye protection should be worn in compliance with the appropriate MSDS or regulatory standard.

Typically, some form of eye protection is recommended whenever airborne fibers are being generated while working with RCF products or whenever required by the employers. Do not touch or rub eyes with soiled body parts or materials. If possible, have eye-washing facilities readily available.

- 3) Personal protective equipment should be properly fitted and worn when required.

**8. Can anything else be done to reduce airborne dust? TO REDUCE AIRBORNE DUST, USE ENGINEERING AND PROCESS CONTROLS.**

- 1) Unless other suitable dust control measures have been implemented successfully, dust collection systems equipped with filtration media designed to capture RCF (for example, HEPA filters) should be used in manufacturing and fabrication settings where appropriate and practicable.
- 2) Prior to recirculation into interior work spaces, air containing RCF should be filtered by a filtration media designed to capture RCF.
- 3) If ventilation systems are used to capture RCF, they should be checked regularly and maintained.

**9. What if irritation occurs? What are appropriate first-aid procedures?**

Skin, eye and respiratory effects are the result of temporary, mild mechanical irritation; fiber exposure does not result in allergic manifestations. Should irritation develop, the following first-aid measures are recommended:

- 1) SKIN: Remove/replace 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.
- 2) EYES: Flush eyes immediately with a large amount of lukewarm water. Eyelids should be held away from the eyeball to ensure thorough rinsing. Do not rub eyes. Get medical attention if irritation persists.
- 3) NOSE & THROAT: Move the person to a dust-free location. Get medical attention if the irritation continues.

Should irritation develop as a persistent issue, consultation with a Unifrax Industrial Hygienist or other health and safety professional may be helpful – please call the Unifrax Product Stewardship Program Hotline at (800) 322-2293.



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