

FIP 4 – Responsible Use of Fibers to Manage Environmental Impact

FRCA and its members are committed to being environmentally responsible with fiber reinforcement for concrete and encourage others to be the same. Fiber reinforcement provides advantages for the durability and performance of concrete. It is important that these advantages not overshadow the construction industry's environmental responsibility in the use of fiber reinforcement. Manufacturers, suppliers, and users of fiber reinforcement must understand its potential environmental impact and play their part to ensure that it is not freely introduced into the environment during the construction process. This document outlines some sensible measures that can ensure responsible use of fiber reinforcement.

General Construction Site Management

As with any construction site that includes concrete work, management of concrete waste and washout/wash water from fiber-reinforced concrete (FRC) should be done per applicable local, state, or national codes. Refer to the following sections for guidance in specific areas of fiber use in the construction process.

FRC Production Facility

Ensure that all fibers are contained within the concrete mixing vessel and avoid fiber spillage. Any spillage should be noted, and appropriate action taken to clean up the spilled fibers.

Ensure that all water drainage within the production facility is directed into plant catch basins that transport water runoff into the site waste water management system and not directly into public sewers or open waterways. As necessary, fibers can be filtered from the water and disposed of properly.

Waste Concrete and Site Cleanup

Waste or leftover concrete in ready-mix trucks, pump hoppers and other equipment should be washed out and discharged into an environmentally friendly washout facility per local, state, or national codes. Fibers that float can be skimmed off the top of the water during the final stage of the washout process. Fibers that do not float can be filtered out with the other materials. The fibers can then be disposed of properly or recycled.

For shotcrete projects, rebound and waste materials, and spoils from mining or tunneling excavations that have been treated with fibers, must be handled properly and disposed of in approved waste landfill area. These materials must not be dumped directly into marine environments as this can have a negative impact on the surrounding areas.

When submersible pumps are used in any washout facility where fibers are present, an appropriately sized mesh material around the inlet port of the pump should be used to prevent any fibers from entering the pump and being pumped elsewhere.

Safety Guidelines

As always before any product is used, the manufacturer's Safety Data Sheet should be consulted for health and safety concerns. In general, the following precautions apply for fiber reinforcement:

- For all fiber types, the use of appropriate personal protective equipment is recommended, especially eye protection.
- Steel fibers can be more hazardous – both gloves and eye protection should be worn.