Recycling in the Foundry Process

Accordingly, a wide variety of materials including metal, sand, wax, wooden pallets, packaging materials, steel drums and other products are finding a second life through recycling as a result of our efforts. Foundries—Creating New Life for Used Sand

Our casting processes require large volumes of sand, which are continually used, reconditioned and reused in the foundry. Metalcasters use and reuse almost 100 million tons of sand annually. Sand that can no longer be used in the foundry process is available for beneficial reuse. Most foundries have installed sand reclamation systems that screen the metal and debris out of the sand so that a good, clean product is available for reuse in a variety of applications and industries. Below are some of the areas in which foundry sand is being successfully marketed:

- Construction Fill / Road Subbase
- Flowable Fill
- Grouts and Mortars
- Potting and Specialty Soils
- Cement Manufacturing
- Precast Concrete Products
- Highway Barriers
- Pipe Bedding
- Asphalt
- Brick and Pavers
- Landfill Daily Cover

Many foundries are processing their wood pallets through a local recycler to manufacture new pallets. Any scrap wood from this process is ground into mulch and sold for landscaping.

Foundries—Making Good Business Through Recycling

The U.S. foundry industry is committed to the preservation and protection of the environment and our natural resources. We all live in this world and hope to pass on a strong environmental legacy to future generations.

Metalcasters recognize the vital role we play in recycling and take this job very seriously. Every day, foundries divert valuable materials from the waste stream, reducing the burden on landfills and incinerators and minimizing the need for virgin materials.

Our recycling efforts not only support the preservation of natural resources, but also make good business. For example, using scrap metal significantly reduces our energy usage, minimizing one of the largest expenses faced by each facility. With sand being $38-$65 per virgin ton, reusing it 8-10 times before disposition proves significant cost savings. Finally, in states with limited landfill space, disposal costs have quadrupled and are still on the rise—diverting foundry by-products into beneficial reuse markets reduces our disposal costs.

The metalcasting industry is excited about the great strides we have made to increase our process recycling and to identify and develop secondary markets for our by-products. Despite the successes in these areas, we recognize that there is still more that can be done.

Increased awareness, acceptance and proactive government policies are critical in order to continue the upward trend of recycling and reusing materials whenever possible. Foundries want to continue to be recycling leaders and responsible stewards of the environment.

What does RECYCLE mean?

1. To reuse materials that otherwise would have been thrown away.
2. To pass through a process again.
3. To recondition and adapt spent materials to a new use or function.

Ford Motor Company’s Cleveland Casting Plant beneficially reuses 100% of their spent sand. These projects include the construction of golf course tee boxes.

Whiteland Foundry of Tennessee uses foundry sand mixed with cement and clay to make terra blocks. These blocks built the Habitat for Humanity home in Chattanooga.
Beneficial Reuse Success Stories Across the Nation

- For over 10 years, Waterman Industries, a California foundry, has completely eliminated all of its landfill costs. In addition, it has recycled and developed manufacturing materials and saleable by-products out of “would-be-wastes.”

- Kohler Co. of Wisconsin used 25,000 tons of foundry sand in the last three years as construction fill material in several road and building construction projects, displacing the need for virgin materials.

- Ford Motor Company’s Cleveland Casting Plant beneficially reuses 100% of their spent sand in a wide variety of environmentally responsible projects. Since 1994, they have recycled over 1,000,000 tons of spent sand.

- A consortium of 33 foundries in southeastern Pennsylvania has established alternative uses for spent sand, resulting in over 80,000 tons being recycled.

- Foundries and legislators in Ohio, working with the state Environmental Protection Agency and Department of Transportation, have developed applications for foundry sand for low-strength concrete.

- A Buffalo, New York, foundry had accumulated an 8000-ton pile of spent sand on its property that would have cost $680,000 for disposal. The foundry partnered with a cement and fill manufacturer, and today that pile of sand is gone.

- Spent sand has been used to make concrete barriers, including barrier production, for the Cleveland Grand Prix car race.

- The Grede Foundry plant in Michigan built a state-of-the-art employee training facility, learning center and lunchroom using concrete blocks made from foundry slag.

Fact or Fiction

- Foundry sand is cleaner than water. FACT–98% of foundry sand will exceed the federal Safe Drinking Water Act leachate standards.

- Some foundries produce ZERO waste. FACT–Several foundries treat and recycle all of their wastewater, sand and other refuse or find beneficial reuses for it, producing no waste to be landfilled.

- Buildings are made from foundry sand. FACT–Foundry sand is used to make concrete, cement, blocks and bricks, all of which are basic construction materials.

- Reused foundry by-products are a widespread part of our everyday lives. FACT–Foundry sands and other recycled materials are commonly found in our roads (asphalt), gardens (mulch), buildings (blocks), parking lots (concrete) and recreation areas (specialty topsoils).

- Some states refuse to allow foundries to recycle sand and other by-products. FACT–Despite the efforts of our industry, many states maintain rules and regulations that prevent the beneficial reuse of foundry materials.