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## **Alert: Signs of a Refractory Problem**

As a general overview, refractories are used to build structures subjected to high temperatures operating at well over 1,000 degrees when in full operation. In regards to boilers, high temp furnaces or ovens, refractories constitute the linings that hold heat inside as well as protect the steel on the outside of the unit. According to The Refractories Institute, typical refractory products are made from natural and synthetic materials, usually nonmetallic, or combinations of compounds and minerals such as alumina, fireclays, bauxite, chromite, dolomite, magnesite, silicon carbide, zirconia, and others.



In a boiler, furnace, or oven, the refractory should be inspected periodically. Proper maintenance and care will extend its useful life. Most common wear on a refractory consists of time and erosion, as well as the on/off cycles resulting in thermal shock to the refractory material.

The following are considered basic signs for what to look for when examining refractory for suspected problems.

First, when the boiler, furnace, or oven is at its normal operating temperature, check for any hot spots on the outer shell. You will visually see the paint burning itself away on the outer skin, or in extreme cases, the steel will glow red from overheating. Once you have determined that there is a problem, the next area to inspect is the actual refractory on the inside. In order to do this, the boiler, furnace, or oven must be turned off and cooled down enough to enter. Depending on the equipment type, this cool down can take as little as 8 hours, or as long as two or three days. Once inside, a visual inspection of the refractory will more than likely tell the story. Large cracks or broken/missing pieces will require repair or replacing. Small hairline cracks are to be expected, but can be filled in with hi-temp bonding cement. A yearly routine "point and paint" maintenance procedure on these cracks can extend its life and be completed with a high temperature bonding or air-dry mortar.

Finally, if any bricks have fallen out or show signs of excessive wear, replace them... and always follow the manufacturer's recommendation for curing the refractory. Bill Scott can answer your refractory questions.

**Call Bill directly at 708 478-7744.**



## **New, Obsolete or Hard to Find Burner Parts are ACSI's Specialty**

ACSI works with many facility managers across the country supplying old, obsolete, hard to find and even new parts. We recommend replacement components that can do the same job or in some cases, fabricate obsolete parts. For help with hard to find parts call ACSI at 773.737.9300.

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