For **Y**our **S**afety

A Weekly e-mail Promoting the Health & Safety of Workers in the Scrap Recycling Industry

CHECK YOUR TORCH

Leaks in cutting torches, hoses, and connections can lead to explosions and cause serious injury. While such leaks may develop in any part of a torch system, they generally occur at the joints and connections.

In 2004, a steel company employee's hands were severely injured when using a cutting torch. The incident involved a worker who was cutting scrap steel. After he had finished torching a piece of scrap, he used his left hand to push it into the scrap bucket. As he reached past the lighted torch (about 4" - 6" away), oxygen that had collected in his glove ignited and blew the glove off his hand. (See Figure 1.) He received first- and second-degree burns on his hand and fingers.

The incident investigation revealed that the oxygen hose had a leak either where the hose ferrule had been crimped or a few inches downstream. The major root cause findings were that oxygen had been leaking from the hose and that the worker did not inspect the torch for leaks before using it. The incident investigation also revealed that the hose ferrule had been crimped with the wrong die. After the accident, the company identified an inexpensive and effective solution for identifying these leaks.

The company instituted an inspection process for workers to verify that all torch components are in proper working order. Before an operator uses a torch, he inspects it, the hoses, connections and valves. The operator inspection process is just one form of a safe work habit that reflects positively in employees' overall safety attitude and makes for a safer work environment.

The operator inspection process includes spraying the hose and all torch fittings, connectors, weld piping and gauge end fittings with a solution of soap and water pumped out of a plastic spray bottle costing less than $2.00. The company keeps a spray bottle clearly marked "Soap and Water" at every torch station. When the soap and water solution is sprayed on a torch and hits a leak, it bubbles. If the hose is under pressure, the test results are immediate. (See Figure 2.) The company uses only soap and water testing solutions that are approved for use by equipment manufacturers because incompatible solutions can lead to corrosion of the cylinder valve and cutting hose. Leaky hoses and fittings are not always repairable and may need to be replaced when a leak is detected.

When the company's safety team conducted weekly and daily safety audits in 2003, they found leaking torches everywhere. After the operator inspection program began in 2004, they found 90-percent fewer leaking torches, regulators and hard gas piping. Prevention and/or reduction to that exposure were the company's goals.

Figure 1. Glove damaged by leaking torch

Figure 2. Bubbling at leak

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