



Equipment Type: Production Paint Oven

Source: CEC Combustion Safety Team

Hazard: Poor Combustion Air Flow Coupled with Malfunctioning Explosion Relief Door

Note: This was not an oven that our firm was testing, had tested, nor were we in any way involved with it.

A paint shop oven exploded at a major auto manufacturer's facility in the greater Detroit area on April 17, 2000. We are not aware of any fatalities or injuries. It is our understanding that the oven had been experiencing problems for some time. We have also been told that the damage was severe and will take days to fix. This event no doubt will cost the owner millions of dollars.

This event reminds us about the special precautions that must be taken with all combustion equipment even when testing. CEC and many of our client's skilled trades are in the midst of testing combustion equipment. One of our professional engineers commented that in testing "you never know what someone left you when you hit the button." "Would you pull your car out of the driveway without hitting the brakes?" He is exactly right. Our staff discussed immediate actions that could help to make testing safer. These include the following:

I. Pre-start Walk Down: Walk down the equipment and physically inspect everything.

1. Are all interlocks/switches connected?
2. Are instrument lines connected? If so and there are valves in them, are they locked open?
3. Are purge fan dampers open and fans operable?
4. Are obvious unknown jumpers installed or relays tampered with?

II. Trial (No Main Fuel) Ignition Cycle

1. Start the unit with all the fuel shut off. Go see if the fans are actually turning and verify air movement for purging if you can safely.
1. Verify the purge timer with a stop watch.
2. Start the unit with only the pilot able to light.
3. Ensure the pilot is stable and functioning properly.
4. Verify that the light off sequence was correct especially when the main gas valves were asked to open.

CEC Combustion Safety, LLC has been in business since 1984. With engineers and staff members that sit on Code committees such as *ASME CSD-1*, *NFPA 56*, *NFPA 85*, *NFPA 86*, and *NFPA 87*, our inside expertise is integrated within all of our practices and our global reach ensures that customers around the world are kept safe. CEC offers Testing and Inspections, Engineering & Upgrades/Retrofits, Gas Hazards Management, Training, and Field Services for all industrial facilities and different types of fuel fired equipment. By assisting organizations and their personnel with the safe maintenance and operation of their combustion equipment, CEC aims to save lives and prevent explosions while increasing efficiency and reliability of combustion equipment. Contact CEC at +1 216.749.2992 or visit www.combustionsafety.com for additional information.