Operations & Maintenance Plan for Paint Drying Oven

Plant 1 Paint Department
Per MI-ROP-N0879-2017

Prepared June 2009
Revised May 2011
Revised August 2014
Revised June 2016
Revised October 2017
Revised July 2020

Overview:

This Operation & Maintenance plan is prepared to meet requirements of Renewable Operation Permit MI-ROP-N0879-2017. It is prepared to document operation and maintenance activities for the paint curing oven located in the Plant 1 Paint Department.

The paint oven is a natural gas-fired, two-bay oven used to air cure painted trucks and parts. Trucks are primed and painted in EUPrimeBooths and/or EUTopcoatBooths , then moved to the oven for curing.

Trucks are usually cured two or three at a time. Once in the oven, doors are closed and a pre-programmed cycle is initiated. The program consists of temperature ramp up, dwell time at temperature, and a cool down cycle. The entire cycle lasts approximately one hour. In December, 2010 Infra-Red Panels were added to the first section of the oven. The IR panels do not increase the air temperature within the oven.

Two air temperature probes are located in the center of the first bay, at the oven ceiling. There is a digital air temperature readout mounted outside the oven, on the control panel. To ensure process control, air temperature is maintained via an electronic controller, which is programmed by the Plant Manager, or Maintenance Manager. By design, paint operators do not have access to temperature settings of the oven programs.

As a failsafe, an interlocking limit switch has been installed to shut down the oven if air temperature reaches 190 degrees Fahrenheit.

Operating Variables and Monitoring/Surveillance:

The normal set point for air temperature is between 140 and 165 degrees Fahrenheit. This temperature has proven to be most effective to ensure proper paint cure. In order to ensure the oven is operated within these limits, only the Plant Manager and Maintenance Manger are granted authorization to alter the programming of the curing cycle. Access to the programming of the controller is password protected.

To ensure the oven does not exceed 194 degrees Fahrenheit, a high temperature limit switch has been installed to shut down the burners, should the air temperature reach 190 degrees Fahrenheit.

In the event of a failure in the limit switch, curing oven operators will manually read air temperature levels and record their reading every 15 minutes. Readings will be recorded on the attached form. Readings need only be recorded while a truck is curing in the oven.

Preventative Maintenance:

Responsibility to oversee inspection, maintenance and repair of the curing oven belongs to the Maintenance Manager. This responsibility includes the maintenance/repair of the oven components, and temperature monitoring devices.

The following table identifies items/conditions that will be inspected to maintain the oven in peak operating condition:

Item	Frequency of inspection/repair
Visually inspect & lubricate fan bearings	Every 3 months
Visually inspect fan belts	Monthly
Visually inspect oven; burners, gas valves, etc	Annually (not to exceed 15 months)
Verify operation of high temperature limit switch	Annually (not to exceed 15 months)

Replacement Parts Inventory:

There are no major replacement parts that will be maintained in house. In the event of a parts failure, an outside contractor will be contracted to repair the oven/controls. This can normally be done within 24 hours of failure.

Curing Oven Temperature Log

In the event the high temperature limit switch is not functioning, paint operators will record the AIR TEMPERATURE READINGS at least every 15 minutes while a cycle is running with a truck inside the oven. Temperature will be recorded as follows:

- Record the current days date.
- Record the cycle start time in column 1.
- Record the time and air temperature off the controller readout. The first reading must be within 15 minutes of the cycle start time. Subsequent readings will be recording no more than 15 minutes apart until the cycle is complete. Place recordings in columns 2-7 as needed.
- Record the cycle stop time in column 8

Date:								
	1	2	3	4	5	6	7	8
	Cycle Start Time	Time/Temp	Time/Temp	Time/Temp	Time/Temp	Time/Temp	Time/Temp	Cycle Stop Time
Cycle 1								
	initials							
Cycle 2								
	initials							
Cycle 3								
	initials							
Cycle 4								
	initials							
Cycle 5								
	initials							
Cycle 6								
	initials							