

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Site Review

N563725003

FACILITY: Surface Activation Technologies, Inc.		SRN / ID: N5637
LOCATION: 1837 THUNDERBIRD., TROY		DISTRICT: Southeast Michigan
CITY: TROY		COUNTY: OAKLAND
CONTACT: Anastasia Plonkey , Quality Manager		ACTIVITY DATE: 04/25/2014
STAFF: Samuel Liveson	COMPLIANCE STATUS: Unknown	SOURCE CLASS: MINOR
SUBJECT: FY2014 Site review for permit to install application number 40-14. Recommended changes for the permit to install application.		
RESOLVED COMPLAINTS:		

On April 23, 2014, AQD staff Iranna Konanahalli and I visited Surface Activation Technologies (SAT), located at 1837 Thunderbird Street in Troy, MI. The purpose of our visit was to understand SAT's chrome plating process for its Permit to Install (PTI) application No. 40-14.

We arrived on site at approximately 3:00 pm. John Wallace, President (phone: 248-273-0037, fax: 248-273-0103, Email: [johnw@surfaceactivation.net](mailto:johnw@surfaceactivation.net)), Anastasia Ploney, Quality Manager (phone: 248-273-0037, fax: 248-273-0103, Email: [anastasiap@surfaceactivation.net](mailto:anastasiap@surfaceactivation.net)), and Brad Radke, Process Engineer (phone: 248-273-0037, fax: 248-273-0103, Email: [bradr@surfaceactivation.net](mailto:bradr@surfaceactivation.net)) assisted Iranna and me during the visit.

SAT is currently applying for PTI 40-14 for its new decorative chrome plating line. ND Industries moved out of the building in CY2002 (see Iranna Konanahalli's SAR CA\_N563708794 from 12/22/2009). SAT has occupied the building for the past eight years, conducting research and development, and will go into production if PTI 40-14 is issued. The space where the chrome plating line will reside has been largely empty these past eight years.

#### Chrome Plating Process

Although chrome plating application is generally limited to acrylonitrile butadiene styrene (ABS) plastics, SAT's chrome plating process applies decorative chrome to plastics other than ABS, and will be used on automobiles and appliances.

SAT's chrome plating process will consist of 49 stations divided among 28 tanks. The first several tanks are rinse tanks that clean the plastic, and acid tanks that etch the plastic surface for better coating adherence. Following are electroless nickel and copper tanks. Nickel must be applied before chrome, so if a copper coating is applied, nickel must be applied between the copper and chrome. Next in the tank layout will be chrome, nickel, and copper application tanks, as well as additional rinse and acid tanks. Which tanks are used for each plastic piece depends on the final product desired. On a walkthrough of the site, AQD saw that empty tanks had been acquired from a chroming facility in Tennessee. Air control equipment and ventilation were not yet in place.

#### Air Pollution Control Equipment

In addition to a composite mesh pad (CMP) system for chrome tank ventilation and a packed-bed scrubber (PBS) for all other emissions ventilated to ambient air, SAT will have additional air pollution control equipment. SAT will monitor surface tension with a stalagmometer, and add to the Cr<sup>+6</sup> plating tanks a foam blanket with a proprietary formula provided by MacDermid. A HEPA filter will be in series with the CMP. The HEPA filter must be replaced periodically. A push-pull ventilation system will be in place with push being approximately 15% of the pull. The ductwork ventilation system, CMP, and PBS will be provided by Duall.

On April 24, 2014, I notified Jeff Rathbun, Senior Environmental Engineer, Permit Section, in charge of PTI application 40-14, of several corrections to application for PTI 40-14 based on our visit: first, that SAT will apply decorative chrome, not hard chrome. Hard chrome was incorrectly written on the permit application. Second, I informed Jeff of the air pollution controls that will be used in addition to the CMS and PBS system. This information may affect PTI application No. 40-14.

Installation of the chrome plating line and all associated control equipment is planned to take place May 1, 2014, and should be complete within 6-8 weeks. Iranna and I departed offsite around 1630.

Iranna and I recommended to Jeff Rathbun to update PTI application 40-14 to regulate decorative Cr<sup>+6</sup> rather than hard Cr<sup>+6</sup>, and that the following controls be added to the PTI 40-14 application: surface tension, foam blanket, and HEPA filter in series with the CMP.

NAME DATE 4/25/14SUPERVISOR CTE