APPENDIX BD - REVISED DETERMINATIONS OF

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

AND

MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (MACT)

Nailite International, Inc.
Miami, Dade County

New Panel Line/Relocation of Existing Line
DEP File No. 0250407-005-AC

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation

December 30, 2002

Nailite International, Inc.
Miami, Dade County

This revised BACT/MACT determination is related to the applicant's ongoing project to convert its processing technology from spray coating to non-spray pigment injection. This process conversion is expected to significantly reduce long-term emissions of toluene, a volatile organic compound (VOC) and a hazardous air pollutant (HAP), and other VOC/HAPs including xylene. In connection with the conversion, the applicant has applied to the Department for a revision of certain requirements in its existing air permit. The most important permitting change is an extension of the shutdown date for the old coating line (EU-001) from December 31, 2002 to December 31, 2003. The additional year of operation of the old line will be carried out in such a manner that the total controlled emissions from EU-001 and the new line (EU-002) will be less than the major source threshold of 250 tons per year, making Nailite a synthetic minor facility for PSD. Thus this revision removes BACT applicability for the new line while its MACT applicability remains unchanged since VOC/HAP emissions exceed the MACT threshold of 10 tons per year of any single HAP and 25 tons per year of total HAPs.

Since the new line was constructed as a BACT unit, some of the original permit requirements for the new line will be retained and emission limits will be set for the old and new lines based on actual test data as provided for in the former permit. The test-based emission limits will apply permanently for the new line while pollutant limits will be established for CY2003 operation of the old line. The Department will require that the old line be shut down permanently after December 31, 2003. MACT requirements for the new line are unchanged by this revision. Overall efficiency of capture and destruction for the new line (EU-004) will remain at 90 percent as in the original permit.

To provide further background for this revision, pertinent permitting actions are reviewed: On September 26, 2000, the Department issued Permit No. 0250407-003-AC (PSD-FL-289) to Nailite International, Inc. to construct a new plastic panel finishing spray line as a modification of its existing major facility formerly located at 1251 NW 165th Street in Miami, Dade County. The entire facility was being relocated to 1111 NW 165th Street, which is about 500 feet from Nailite's former location. The new spray line (EU-002) is housed in the new building along with the old line (EU-001), which was relocated to operate alongside the new line. Originally, the project was subject to review for Prevention of Significant Deterioration (PSD) and Best Available Control Technology (BACT) in accordance with Rule 62-212.400, F.A.C. The modification triggered PSD review for the new line because it resulted in a significant emissions increase of (VOC) with respect to Table 212.400-2, Florida Administrative Code (F.A.C.). The Department determined that the applicant's new line and the existing operation at the former location were "adjacent" according to the PSD rules and therefore comprised a single facility. Due to uncertainties in the capture efficiency of the old line, the Department did not have reasonable assurances initially that the controlled facility would come under the 250 tons per year threshold for PSD applicability, therefore, the PSD rules applied to the modification.

The project was also subject to a case-by-case Maximum Achievable Control Technology (MACT) Determination in accordance with Rule 62-204.800(10)(d)2, F.A.C. since it is a major source of hazardous air pollutants (HAP). In the time that has elapsed since the original construction permit was issued, the U.S. Environmental Protection Agency (EPA) has still not issued final MACT standards for plastic parts coating processes. On December 4, 2002, MACT standards were proposed for new and existing sources engaged in surface coating of plastic parts and products (see Federal Register/Vol. 67, No. 233, December 4, 2002, pages 72276-72327). However, until final MACT rules are promulgated, the Department is required by its rules to issue a case-by-case MACT determination for major sources of HAP. Therefore, the

former MACT determination still applies for the new line and forms the basis for the permit limits pursuant to Specific Condition No. 3 in the revised construction permit (0250407-004-AC).

Other details of Nailite's operation and a description of the process were originally presented in the separate Technical Evaluation and Preliminary Determination issued concurrently with the original determinations. Therefore, this revised determination addresses mainly the new testing requirements for setting final emission limits.

FINAL PERMIT LIMITS

Nailite conducted its first compliance test in April of 2001 after starting operations at the new location in October 2000. Although the construction permit required a capture efficiency test on Line No. 1 (EU-001) within 45 days of startup in the new location, the April 2001 test involved capture and destruction efficiency tests for only the new line, EU-002. In response to Miami-Dade County's May 17, 2002 written notice of violation regarding the capture efficiency test on EU-001, Nailite conducted another series of tests in June 2002. Those tests, conducted by a different contractor, included a destruction test while operating both the old and new lines together and a separate capture efficiency test on the old line.

The Department discovered significant calculation errors in both the 2001 and 2002 sets of test results, which were obtained by different contractors using different analyzers and calibration gases. The data lacked the proper calibration gas conversions that would have been required to report actual toluene emissions; thus, the Department questioned the accuracy of the results. Due to additional discrepancies noted in the 2001 and 2002 material balance data used to calculate capture efficiencies, the Department determined that both the April 2001 and June 2002 test data are invalid. Consequently, Nailite agreed to retest both lines during January 2003 for the purpose of setting emission limits as outlined herein.

It was agreed that the retesting will be conducted according to the following protocols: EPA Method 25A using propane as the calibration gas will be employed to measure VOC/HAP emissions. For emissions of toluene (C7H8), the analyzer senses the seven carbon atoms of each toluene molecule as though they were 7/3 or 2.33 propane molecules. Therefore, the analyzer's ppm output will be adjusted to get the theoretical actual concentration in terms of toluene. After correcting the theoretical factor for the analyzer's individual sensitivity and response factors, the actual factor will be reported and used to calculate actual toluene emissions. The same procedure using the appropriate factors will be followed for other VOC/HAPs emitted. Three sets of three one-hour tests will be conducted: (1) simultaneous overall capture and destruction efficiency while both the old and new lines are operating together at permitted capacity, which is defined as 90-100% of the maximum operating rate allowed by the permit; (2) individual capture efficiency of EU-001 operating alone at permitted capacity; and (3) individual capture efficiency of EU-002 operating alone at permitted capacity. The capture efficiency shall be determined from the monitored material consumption and the measured concentration at the inlet of the air pollution control device. Destruction efficiency shall be determined from the concentrations at the inlet and outlet of the air pollution control device.

MACT CONTROL TECHNOLOGY

VOC/HAP emissions consist primarily of toluene and xylene evolved during the coating process. The prior BACT/MACT determination established that VOC/HAP emissions will be controlled using a twin bed Regenerative Thermal Oxidizer (RTO) designed for a process gas flow rate of 27,000 acfm. Propane will be used at start-up as a secondary fuel, while the captured solvent will be the primary fuel.

VOC/HAP potential emissions from the new line are estimated at approximately 130.5 TPY. Approximately 90 percent of the VOC/HAP in the coating will be released in the paint booths while 10 percent remains in the coating. The design capture efficiency for the new line was originally set at 95 percent. The design destruction efficiency of the RTO was also set at 95 percent, although initial testing indicates that destruction efficiency will be above 99 percent. Therefore, until final testing is completed and limits established based on actual test results, the MACT overall capture and destruction efficiency requirement of 90 percent will remain unchanged.

Paint filters will be used to control particulate emissions from the spray booth operations. New circular ducting and a new filtering system will be installed to improve filtration and possibly the capture efficiency. PM/PM10 potential emissions are estimated at 4.7 TPY based on 25 percent over spray of coating in the booths and 95 percent removal by the paint filter pads.

Emissions of SO_2, NOx and CO are projected to be well below 1.0 TPY.

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

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