

Consent Order Number AM-99-900

BEFORE THE  
STATE OF WISCONSIN  
DEPARTMENT OF NATURAL RESOURCES

In the Matter of Compliance with ss. NR 422.08, and NR 436.05, Wis. Adm. Code, for the Vinyl Coating Operations at Uniroyal Engineered Products Located in Stoughton, Dane County, Wisconsin. ) Consent Order #: AM-99-900  
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FINDINGS OF FACT, CONCLUSIONS OF LAW, AND CONSENT ORDER

FINDINGS OF FACT

The Department of Natural Resources (hereinafter DNR) finds that:

1. Uniroyal Engineered Products, FID # 113004210, is located at 501 South Water Street, Stoughton, Dane County, Wisconsin.
2. Uniroyal Engineered Products owns and operates vinyl coating lines designated P02, P04, P06, P08, P10, and P12, which are subject to the requirements of s. NR 422.08, Wis. Adm. Code.
3. Uniroyal Engineered Products submitted a request for a variance from the requirements of s. NR 422.08, Wis. Adm. Code, under s. NR 436.05, Wis. Adm. Code, on January 13, 1987. DNR approved this variance on February 3, 1987. On October 30, 1995, and September 19, 1996, Uniroyal Engineered Products submitted a request for modifications to the variance.
4. DNR has reviewed the variance request submitted by Uniroyal Engineered Products dated October 30, 1995, and September 19, 1996, and determined that the variance may be granted, provided that the conditions contained within this Consent Order are met.
5. On December 4, 1997, DNR offered the public, through public notice, the opportunity to comment on the variance request for 30 days. On January 7, 1998, DNR held a public hearing offering the public further opportunity to comment on this variance request. No public comments on the variance request were received by DNR.

CONCLUSIONS OF LAW

DNR concludes that:

1. DNR has the authority under ss. 285.11(1), 285.11(6), and 285.17, Wis. Stats., to promulgate rules to establish emission limitations and reporting requirements and to prepare and revise comprehensive plans for the prevention, abatement and control of air pollution in this state.
2. The operation of the vinyl coating lines, P02, P04, P06, P08, P10, and P12, by Uniroyal Engineered Products is subject to the limitations contained in s. NR 422.08, Wis. Adm. Code.
3. DNR has the authority, pursuant to s. NR 439.04, Wis. Adm. Code, to require an owner or operator of a source to keep records relating to its air emissions.

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4. DNR has the authority, pursuant to ss. 285.17, Wis. Stats., and NR 439.03, Wis. Adm. Code, to require an owner or operator of a source to furnish information to the DNR concerning its emissions of air contaminants.
5. DNR has the authority under s. NR 436.05, Wis. Adm. Code, to grant source specific revisions to its State Implementation Plan setting alternate emission limitations for sources meeting the variance criteria of s. NR 436.05(2), Wis. Adm. Code.
6. DNR has the authority under s. 285.13(2), Wis. Stats., to issue this Consent Order.
7. The issuance of this Consent Order is reasonable and necessary to accomplish the purposes of ch. 285, Wis. Stats., and ss. NR 422.08 and NR 436.05, Wis. Adm. Code. This Consent Order is enforceable under ss. 285.83 and 285.87, Wis. Stats. and ch. NR 494, Wis. Adm. Code.

**CONSENT ORDER**

The parties to this Consent Order, DNR and Uniroyal Engineered Products, hereby agree to the following provisions. Uniroyal Engineered Products shall comply with the following limitations, compliance demonstration methods, and recordkeeping and monitoring requirements for the vinyl coating lines, P02, P04, P06, P08, P10, and P12:

- A. S02, P02 - P-2 print line with drying oven. S04, P04 - P-4 print line with drying oven.
- S06, P06 - P-6 print line with drying oven. S08, P08 - P-8 print line with drying oven.
- S10, P10 - P-10 print line with drying oven. S12, P12 - Lab print line with drying oven.

<p>1. Volatile Organic Compounds Variance from RACT:</p> <p>Continued below...</p>	<p>(1) <u>Variance from RACT requirements.</u> Volatile organic compounds from the printing lines shall be controlled in the following manner:</p> <p>(a) At least 95% of all vinyl yardage requiring topcoats shall be coated with waterborne topcoats, calculated on a monthly basis; or</p> <p>(b) Whenever the limitation in (1)(a) above is not met, the permittee shall use a thermal incinerator to control emissions to the level that would have been attained had the permittee complied with (1)(a) above. [s. NR 436.05(1), Wis. Adm. Code.]</p> <p>Continued below...</p>	<p>(1) A thermal incinerator shall be used to control emissions whenever the limitation in I.A.1.a.(1)(a) is not met. [ss. NR 436.05(1), and NR 407.09(4)(a)3.b., Wis. Adm. Code.]</p> <p>(2) The thermal incinerator shall be equipped with thermocouples at the inlet and exhaust of the incinerator. [ss. NR 407.09(1)(c)1.b., NR 436.05(1), and NR 439.055(1)(d), Wis. Adm. Code.]</p> <p>(3) The temperature in the combustion chambers of the thermal incinerator shall be maintained between 1400°F and 1500°F. [ss. NR 407.09(4)(a)3.b., and NR 436.05(1), Wis. Adm. Code.]</p> <p>Continued below...</p>	<p>(1) Whenever compliance emissions testing is required for organic compound emissions, U.S. EPA Method 25A shall be used. [s. NR 439.06(3)(a), Wis. Adm. Code]</p> <p>(2) The permittee shall continuously record the temperature at the inlet and exhaust of the thermal incinerator. [s. NR 439.04(1)(d), Wis. Adm. Code.]</p> <p>(3) The permittee shall keep the following daily records:</p> <ul style="list-style-type: none"> <li>(a) the date;</li> <li>(b) the unique name or identification number for each coating, solvent, ink, or other material applied that day;</li> <li>(c) an identification of each top coat as either waterborne or solventborne;</li> <li>(d) the VOC content of each coating, solvent, ink, or other material as applied, in pounds per gallon, (V);</li> <li>(e) the amount of each coating, solvent, ink, or other material applied that day to vinyl using press heads that are <u>not</u> controlled by the thermal incinerator, in gallons, (A);</li> </ul> <p>Continued below...</p>
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<sup>1</sup>This is a variance from s. NR 422.08(2)(b), Wis. Adm. Code, covering VOC emissions from vinyl coating. The Department reserves the right to reevaluate this variance in the event that inks, corrective overprints (COPs), or backcoats become available which are lower in solvent content and meet the performance requirements of this application.

A. S02, P02, S04, P04, S06, P06, S08, P08, S10, P10, and S12, P12 - Print lines, Continued...

<p>...Continued from above 1. Volatile organic compounds, Variance from RACT</p> <p>Continued below...</p>	<p>...Continued from above (2) No more than 65,630 pounds of volatile organic compounds may be released into the ambient air per month. [s. NR 436.05(1), Wis. Adm. Code.]</p> <p>(3) No more than 5,435 pounds of volatile organic compounds may be released into the ambient air per day. [s. NR 436.05(1), Wis. Adm. Code.]</p>	<p>...Continued from above (4) The exhaust gas flow rate through the incinerator shall be maintained within a range determined during the most recently accepted stack test that showed compliance with the limitations. [s. NR 407.09(4)(a)3.b., Wis. Adm. Code.]</p> <p>(5) Within 90 days of initial operation of this incinerator, the permittee shall perform compliance emission testing to demonstrate the overall control efficiency of the thermal incinerator. The following parameters shall be monitored during any stack testing:</p> <p>(a) the temperature of the inlet and exhaust of the incinerator;</p> <p>(b) the actual exhaust gas flow rate through the incinerator; and</p> <p>(c) the retention time of gases in the incinerator. [ss. NR 407.09(1)(c)1.b., and NR 436.05(1), Wis. Adm. Code]</p> <p>(6) The permittee shall calculate the total pounds of volatile organic compounds emitted to the ambient air on each working day using the following equation<sup>2</sup>:</p> $E_{ad} = \sum_{i=1}^n A_i V_i + \sum_{i=1}^n B_i V_i (1 - Eff)$ <p>Continued below...</p>	<p>...(3) Continued from above (f) the amount of each coating, solvent, ink, or other material applied that day, in gallons, to vinyl using printing heads that are controlled by the thermal incinerator, (B<sub>i</sub>); (g) the actual daily emissions of VOCs from all printing operations, in pounds, (E<sub>ad</sub> as calculated in I.A.1.b.(6).); (h) the amount of topcoat used, in gallons; (i) the yards of vinyl coated with each topcoat; and (j) the total yards of vinyl receiving topcoat that day. [ss. NR 407.09(4)(a), NR 436.05(1), and NR 439.04(1)(d), Wis. Adm. Code.]</p> <p>(4) The permittee shall keep the following monthly records: (a) the total pounds of volatile organic compounds emitted to the ambient air from all print lines for the given month, (E<sub>am</sub> as calculated in I.A.1.b.(7)(a).); (b) the yards of vinyl on which waterborne topcoats were used during the calendar month, (Y<sub>wb</sub>); (c) the total yards of vinyl on which topcoats of any kind were used during the calendar month, (Y<sub>t</sub>); (d) the percentage of topcoated vinyl yardage on which waterborne coating were used in the given month, (%V<sub>wb</sub>);</p> <p>Continued below...</p>
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<sup>2</sup>If the facility does not operate more than 2 shifts per day for the entire month, calculations of the daily emissions for each month must be performed no later than the 15th day of the following calendar month. If the facility operates more than 2 shifts (16 hours) on any day the calculations must be performed by the end of the next business day for the duration of that month.

A. S02, P02, S04, P04, S06, P06, S08, P08, S10, P10, and S12, P12 - Print lines, Continued...

<p>Continued from above 1. Volatile organic compounds, Variance from RACT</p> <p>Continued below...</p>	<p>... (6) Continued from above</p> <p>Where: i is used to denote individual coatings, solvents, inks, or other materials; n is the total number of different coatings, inks, and other materials used in the day; Ead is the actual daily emissions not to exceed 5435 pounds; Ai is the gallons of coating, ink, or other material applied to the vinyl during the day using press heads that are <u>not</u> controlled by the thermal incinerator; Bi is the gallons of coating, ink, or other material applied to the vinyl during the day using press heads that are controlled by the thermal incinerator; Vi is the VOC content of the coating, ink, or other material applied to the vinyl during the day in pounds per gallon; and Eff is the overall control efficiency of the thermal incinerator equal to 0.792 prior to emission testing. After testing it is equal to the level determined during the most recently accepted stack test which showed compliance with the limitation. [ss. NR 407.09(1)(c)1.b., and NR 436.05(1), Wis. Adm. Code.]</p> <p>(7) By the 15th day following each calendar month, the permittee shall: (a) calculate the total pounds of volatile organic compounds emitted to the ambient air from all print lines for the month using the following equation: <math display="block">E_{am} = \sum_{j=1}^m E_{ad,j}</math></p> <p>Where: j is used to denote each day of the month; m is equal to the total number of days in the calendar month; Eam is equal to the actual monthly emissions not to exceed 65,630 pounds; and Ead is the actual daily emissions, in pounds per day, as calculated in I.A.1.b.(6) above.</p> <p>Continued below...</p>	<p>... (4) Continued from above (e) the total gallons of topcoats applied in the month, (X); and (f) whenever (4)(d) above is less than 95%, the theoretical emissions, Et, as calculated in I.A.1.b.(7)(c). [ss. NR 436.05(1), and NR 439.04(1)(d), Wis. Adm. Code.]</p> <p>(5) In addition to the reporting requirements of permit 113004210-P02 I.G.2.b.(1), the permittee shall prepare a summary of the results of the recordkeeping requirements in (2) through (4) above and submit it to the Department no later than the 15th day of each calendar month. [ss. NR 436.05(1), and NR 439.03(1)(b), Wis. Adm. Code.]</p> <p>(6) In addition to the reporting requirements of permit 113004210-P02 I.G.2.b.(1), the permittee shall prepare a report every six months which contains a description of the latest efforts made by the permittee to develop and/or locate compliant inks, corrective overprints (COPs), and backcoats. [ss. NR 436.05(1), and NR 439.03(1)(b), Wis. Adm. Code.]</p> <p>Continued below...</p>
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A. S02, P02, S04, P04, S06, P06, S08, P08, S10, P10, and S12, P12 - Print lines, Continued...

<p>...Continued from above 1. Volatile organic compounds, Variance from RACT</p>	<p>...(7) Continued from above (b) calculate the percent of topcoated vinyl yardage on which waterborne formulations were used during that month using the following equation; <math display="block">\%Vwb = Ywb/Yt</math> Where: %Vwb is the percent of topcoated vinyl on which waterborne formulations were used during the month; Ywb is the total yards of vinyl on which waterborne topcoats were used during the calendar month; and Yt is the total yards of vinyl on which topcoats (both waterborne and solventborne) were used during the calendar month. (c) when the result of (7)(b) above is less than 95%, calculate the total theoretical emissions, Et (lb/mo), of VOCs that would have been emitted if 95% of the topcoated vinyl yardage had been coated with waterborne coatings. Use the following equation: <math display="block">^3Et = Xgal/mo[(0.95 \times 0.9 \text{ lb/gal})+(0.05 \times 6.1 \text{ lb/gal})]</math> where: Et is the theoretical emissions of VOCs in pounds per month; and X is the total gallons of topcoats applied in the month. (d) when the result of (7)(b) above is less than 95%, compare the emissions, Eam, as calculated in (7)(a) above with the theoretical emissions, Et, as calculated in (7)(c) above. Eam shall never be greater than Et. [ss. NR 407.09(1)(c)1.b., and NR 436.05(1), Wis. Adm. Code.]</p>	<p>...Continued from above (7) If any of the provisions of I.A.1.a.(1) through (3) and I.A.1.b.(1) through (7) and I.A.1.c.(2) through (6) are not met, the permittee shall submit notification by the next business day identifying noncompliance, the cause, duration and steps taken to prevent its recurrence as required in section II.D.1 of permit 113004210-P02. [s. NR 439.03(4)(c), Wis. Adm. Code.]</p>
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<sup>3</sup>In the equation above, it is assumed that the weight of coating used can be a surrogate for the vinyl yardage topcoated. The permit application gave a maximum of 0.9 pounds VOC per gallon as the VOC content of waterborne topcoats, and 6.1 pounds VOC per gallon as the VOC content for solventborne coatings.

A. S02, P02, S04, P04, S06, P06, S08, P08, S10, P10, and S12, P12 - Print lines, Continued...

<p>...Continued from above 1. Volatile organic compounds, Variance from RACT</p>	<p>...(7) Continued from above (b) calculate the percent of topcoated vinyl yardage on which waterborne formulations were used during that month using the following equation; <math display="block">\%V_{wb} = Y_{wb}/Y_t</math> Where: %Vwb is the percent of topcoated vinyl on which waterborne formulations were used during the month; Ywb is the total yards of vinyl on which waterborne topcoats were used during the calendar month; and Yt is the total yards of vinyl on which topcoats (both waterborne and solventborne) were used during the calendar month. (c) when the result of (7)(b) above is less than 95%, calculate the total theoretical emissions, Et (lb/mo), of VOCs that would have been emitted if 95% of the topcoated vinyl yardage had been coated with waterborne coatings. Use the following equation: <math display="block">^3Et = X_{gal}/mo[(0.95 \times 0.9 \text{ lb/gal})+(0.05 \times 6.1 \text{ lb/gal})]</math> where: Et is the theoretical emissions of VOCs in pounds per month; and X is the total gallons of topcoats applied in the month. (d) when the result of (7)(b) above is less than 95%, compare the emissions, Eam, as calculated in (7)(a) above with the theoretical emissions, Et, as calculated in (7)(c) above. Eam shall never be greater than Et. [ss. NR 407.09(1)(c)1.b., and NR 436.05(1), Wis. Adm. Code.]</p>	<p>...Continued from above (7) If any of the provisions of I.A.1.a.(1) through (3) and I.A.1.b.(1) through (7) and I.A.1.c.(2) through (6) are not met, the permittee shall submit notification by the next business day identifying noncompliance, the cause, duration and steps taken to prevent its recurrence as required in section II.D.1 of permit 113004210-P02. [s. NR 439.03(4)(c), Wis. Adm. Code.]</p>
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<sup>3</sup>In the equation above, it is assumed that the weight of coating used can be a surrogate for the vinyl yardage topcoated. The permit application gave a maximum of 0.9 pounds VOC per gallon as the VOC content of waterborne topcoats, and 6.1 pounds VOC per gallon as the VOC content for solventborne coatings.