INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

TO: Interested Parties / Applicant

DATE: April 11, 2005

RE: Surtec, Inc / 127-20607-00105

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision – Approval

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to 326 IAC 2, this approval was effective immediately upon submittal of the application.

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days from the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for considerations at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FNPER-AM.dot 1/10/05

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.in.gov/idem

Mr. Art Schmidt
Surtec, Inc.
5907 Murvilhill Road
Valparaiso, Indiana 46383

April 11, 2005

Dear Mr. Schmidt:

Re: Exempt Construction and Operation Status,
127-20607-00105

The application from Surtec, Inc., received on January 27, 2005, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following fine performance chemicals manufacturing plant, located at 5907 Murvihill Road, Valparaiso, Indiana 46383 is classified as exempt from air pollution permit requirements:

(a) One (1) Closed Reactor Train (identified as T1), constructed in 1995, consisting of tanks and heat exchangers and used for the following processes:

(1) One (1) quaternization process (identified as A1-f2) with a maximum throughput of 1,195 pounds of raw materials per hour, and manufacturing quaternary ammonium chloride.

(2) One (1) paintable silicone process (identified as A1-f3) with a maximum throughput of 937 pounds of raw materials, and manufacturing paintable silicone product.

(b) One (1) Vacuum Strip Reactor Train (identified as T2), constructed in 1995, consisting of tanks and heat exchangers and used for the following processes:

(1) One (1) equilibration process (identified as A--g4) with a maximum throughput of 625 pounds of raw materials per hour, and manufacturing silicone polymer.

(2) One (1) addition reaction process (identified as A--g5) with a maximum throughput of 312 pounds of raw materials per hour, and manufacturing silicone polyol.

(3) One (1) polyol acetate capping process (identified as A--g6) with a maximum throughput of 125 pounds of polyethylene glycol and acetic anhydride per hour, and manufacturing acetate capped polyol.

(c) One (1) Condensation Reactor Train (identified as T3), constructed in 1995, consisting of tanks and heat exchangers and used for the following process:

(1) One (1) BC301 process (identified as A3-f1) with a maximum throughput of 536 pounds of aliphatic diamine and urea per hour, and manufacturing BC-301 product.

(d) One (1) Emulsion Reactor Train (identified as T4), constructed in 1995, consisting of tanks and heat exchangers and used for the following process:

(1) One (1) silicone emulsion (identified as A4--7) with a maximum throughput of 1720 pounds of raw materials per hour, and manufacturing silicone emulsion product.

(e) One (1) natural gas fired boiler, identified as Boiler 1, with a maximum heat input capacity of 2.243 MMBtu per hour. This unit was constructed in 1995.

(f) Three (3) storage tanks:

(1) Tank F5A, used for storing deionized (DI) water with a capacity of 2,000 gallons and constructed in 1995.

(2) Tank F5B, used for storing chilled water with a capacity of 5,000 gallons and constructed in 1995.

(3) Tanks F5C, used for storing waste water, with a capacity of 10,000 gallons and constructed in 1995.

(g) One (1) Closed Reactor Train (identified as T1), constructed in 2005, consisting of tanks and heat exchangers and used for the following processes:

(1) One (1) quaternization process (identified as D1-i2) with a maximum throughput of 1,195 pounds of raw materials per hour, and manufacturing quaternary ammonium chloride.

(2) One (1) paintable silicone process (identified as D1-i3) with a maximum throughput of 937 pounds of raw materials, and manufacturing paintable silicone product.

(h) One (1) Vacuum Strip Reactor Train (identified as T2), constructed in 2005, consisting of tanks and heat exchangers and used for the following processes:

(1) One (1) equilibration process (identified as D2-j4) with a maximum throughput of 625 pounds of raw materials per hour, and manufacturing silicone polymer.

(2) One (1) addition reaction process (identified as D2-k5) with a maximum throughput of 312 pounds of raw materials per hour, and manufacturing silicone polyol.

(3) One (1) polyol acetate capping process (identified as D2-k6) with a maximum throughput of 125 pounds of polyethylene glycol and acetic anhydride per hour, and manufacturing acetate capped polyol.

(i) One (1) Condensation Reactor Train (identified as T3), constructed in 2005, consisting of tanks and heat exchangers and used for the following process:

(1) One (1) BC301 process (identified as D3-h1) with a maximum throughput of 536 pounds of aliphatic diamine and urea per hour, and manufacturing BC-301 product.

(j) One (1) Emulsion Reactor Train (identified as T4), constructed in 2005, consisting of tanks and heat exchangers and used for the following process:

(1) One (1) silicone emulsion (identified as D4--7) with a maximum throughput of 1720 pounds of raw materials per hour, and manufacturing silicone emulsion product.

(k) Two (2) natural gas-fired boilers, identified as Boilers 2 and 3, each with a maximum heat input capacity of 6.00 MMBtu per hour. These units were constructed in 2005.

(l) One (1) natural gas-fired boiler, identified as Boiler 4, with a maximum heat input capacity of 2.70 MMBtu per hour. This unit was constructed in 2005.

(m) One (1) natural gas-fired boiler, identified as Boiler 5, with a maximum heat input capacity of 0.75 MMBtu per hour. This unit was constructed in 2005.

NOTE: The process description under each reactor train is based on worst case batch production and all reactors (except Emulsion Reactor Train) consist of vents that are used to remove air from the equipment prior to batch processing to preserve the quality of the chemicals products. The exhausted air goes through a scrubber tank filled with the material specific to the process.

(n) Sixteen (16) storage tanks:

(1) Tank ESF, used for storing waste waster, with a capacity of 5,000 gallons and constructed in 2005.

(2) Tanks E5D and E5E, used for storing Alpha Methyl Styrene and Alpha Olefin, with a capacity of 10,000 gallons each and constructed in 2005.

(3) Tanks E5G, E5H, D5R, and D5S used for storing Polymethyl Hydrogen Siloxane, two (2) with a capacity of 8,000 gallons each, and two (2) with a capacity of 3,000 gallons, and constructed in 2005.

(4) Tanks E5I, E5K, D5M, and D5N used for storing Paintable Silicone, one with a capacity of 8,000 gallons and three (3) with a capacity 6,000 gallons each and constructed in 2005.

(5) Tanks E5J, E5L, and D5Q used for storing Silicone Emulsion, with a capacities of 8,000, 6,000 and 3,000 gallons, respectively, and constructed in 2005.

(6) Tanks E5O and D5P, used for storing Silicone Emulsion, with a capacity of 3,000 gallons each and constructed in 2005.

The following conditions shall be applicable:

(a) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following:

(1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

(b) Pursuant to 326 IAC 6-2-4(a) (Particulate Emission Limitations for Sources of Indirect Heating), the particulate emissions from the one (1) natural gas fired boiler (identified as Boiler 1) with maximum heat input capacity of 2.243 MMBtu per hour, which was existing and in operation after September 21, 1983, shall be limited to 0.6 pounds of particulate matter per MMBtu heat input.

(c) Pursuant to 326 IAC 6-2-4(a) (Particulate Emission Limitations for Sources of Indirect Heating), the particulate emissions from the three (3) natural gas fired boilers (identified as Boiler 2, 3, and 4) with maximum combined heat input capacity of 15.45 MMBtu per hour, which were existing and in operation after September 21, 1983, shall each be limited to 0.54 pounds of particulate matter per MMBtu heat input.

(d) The two (2) bulk organic storage tanks (Tanks E5D and E5E) are subject to the following provisions of 326 IAC 8-9 (Volatile Organic Storage Vessels).

Since the storage capacities are less than 39,000 gallons each, the Permittee is subject only to the recordkeeping and reporting requirement in 326 IAC 8-9-6(b). The Permittee shall maintain a record for the life of the vessel and submit to the department a report containing the following information:

(1) The vessel identification;

(2) The vessel dimensions; and

(3) The vessel capacity.

This exemption is the first air approval issued to this source.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Nysa James
for
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

ERG/SD

cc: File – Porter County
Porter County Health Department
Air Compliance – Michael Hall
Northwest Regional Office
Permit Tracking
Compliance Data Section

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for an Exemption

Source Background and Description

Source Name:	Surtec, Inc.
Source Location:	5907 Murvihill Road, Valparaiso, Indiana 46383
County:	Porter
SIC Code:	2893
Operation Permit No.:	127-20607-00105
Permit Reviewer:	ERG/SD

The Office of Air Quality (OAQ) has reviewed an application from Surtec, Inc., relating to the construction and operation of reactor trains at an existing fine performance chemicals manufacturing plant.

History

On January 27, 2005, Surtec, Inc. submitted an application to IDEM, OAQ requesting permission to construct and operate four (4) new reactor trains, four (4) boilers and sixteen (16) storage tanks at their existing fine performance chemicals manufacturing plant. The source was constructed in 1995 and to date the plant has not been permitted. The source is in one (1) of the twenty-eight (28) source categories.

The Permittee processes hazardous raw materials in reactor trains which are engineered to be closed systems. These reactor trains consist of tanks and heat exchangers. Since the process operates as a closed system, emissions of HAPs and VOC are minimal and occur as a result of leaks from the process. Since the source belongs to one of the twenty-eight source categories, fugitive VOC emissions are counted towards determination of Potential to Emit for PSD and Emission Offset. The chemicals manufactured are used in coatings, floor wax, inks, cosmetics, and plastics. Analytical equipment is used to verify that the reaction is complete before cooling and opening of the reactors.

Existing Emission Units and Existing Pollution Control Equipment

The source consists of the following existing emission units:

(a) One (1) Closed Reactor Train (identified as T1), constructed in 1995, consisting of tanks and heat exchangers and used for the following processes:

(1) One (1) quaternization process (identified as A1-f2) with a maximum throughput of 1,195 pounds of raw materials per hour, and manufacturing quaternary ammonium chloride.

(2) One (1) paintable silicone process (identified as A1-f3) with a maximum throughput of 937 pounds of raw materials, and manufacturing paintable silicone product.

(b) One (1) Vacuum Strip Reactor Train (identified as T2), constructed in 1995, consisting of tanks and heat exchangers and used for the following processes:

(1) One (1) equilibration process (identified as A--g4) with a maximum throughput of 625 pounds of raw materials per hour, and manufacturing silicone polymer.

(2) One (1) addition reaction process (identified as A--g5) with a maximum throughput of 312 pounds of raw materials per hour, and manufacturing silicone polyol.

(3) One (1) polyol acetate capping process (identified as A--g6) with a maximum throughput of 125 pounds of polyethylene glycol and acetic anhydride per hour, and manufacturing acetate capped polyol.

(c) One (1) Condensation Reactor Train (identified as T3), constructed in 1995, consisting of tanks and heat exchangers and used for the following process:

(1) One (1) BC301 process (identified as A3-f1) with a maximum throughput of 536 pounds of aliphatic diamine and urea per hour, and manufacturing BC-301 product.

(d) One (1) Emulsion Reactor Train (identified as T4), constructed in 1995, consisting of tanks and heat exchangers and used for the following process:

(1) One (1) silicone emulsion (identified as A4--7) with a maximum throughput of 1720 pounds of raw materials per hour, and manufacturing silicone emulsion product.

(e) One (1) natural gas fired boiler, identified as Boiler 1, with a maximum heat input capacity of 2.243 MMBtu per hour. This unit was constructed in 1995.

(f) Three (3) storage tanks:

(1) Tank F5A, used for storing deionized (DI) water with a capacity of 2,000 gallons and constructed in 1995.

(2) Tank F5B, used for storing chilled water with a capacity of 5,000 gallons and constructed in 1995.

(3) Tanks F5C, used for storing waste water, with a capacity of 10,000 gallons and constructed in 1995.

New Emission Units and Pollution Control Equipment

The source consists of the following new emission units:

(g) One (1) Closed Reactor Train (identified as T1), constructed in 2005, consisting of tanks and heat exchangers and used for the following processes:

(1) One (1) quaternization process (identified as D1-i2) with a maximum throughput of 1,195 pounds of raw materials per hour, and manufacturing quaternary ammonium chloride.

(2) One (1) paintable silicone process (identified as D1-i3) with a maximum throughput of 937 pounds of raw materials, and manufacturing paintable silicone product.

(h) One (1) Vacuum Strip Reactor Train (identified as T2), constructed in 2005, consisting of tanks and heat exchangers and used for the following processes:

(1) One (1) equilibration process (identified as D2-j4) with a maximum throughput of 625 pounds of raw materials per hour, and manufacturing silicone polymer.

(2) One (1) addition reaction process (identified as D2-k5) with a maximum throughput of 312 pounds of raw materials per hour, and manufacturing silicone polyol.

(3) One (1) polyol acetate capping process (identified as D2-k6) with a maximum throughput of 125 pounds of polyethylene glycol and acetic anhydride per hour, and manufacturing acetate capped polyol.

(i) One (1) Condensation Reactor Train (identified as T3), constructed in 2005, consisting of tanks and heat exchangers and used for the following process:

(1) One (1) BC301 process (identified as D3-h1) with a maximum throughput of 536 pounds of aliphatic diamine and urea per hour, and manufacturing BC-301 product.

(j) One (1) Emulsion Reactor Train (identified as T4), constructed in 2005, consisting of tanks and heat exchangers and used for the following process:

(1) One (1) silicone emulsion (identified as D4--7) with a maximum throughput of 1720 pounds of raw materials per hour, and manufacturing silicone emulsion product.

(k) Two (2) natural gas-fired boilers, identified as Boilers 2 and 3, each with a maximum heat input capacity of 6.00 MMBtu per hour. These units were constructed in 2005.

(l) One (1) natural gas-fired boiler, identified as Boiler 4, with a maximum heat input capacity of 2.70 MMBtu per hour. This unit was constructed in 2005.

(m) One (1) natural gas-fired boiler, identified as Boiler 5, with a maximum heat input capacity of 0.75 MMBtu per hour. This unit was constructed in 2005.

NOTE: The process description under each reactor train is based on worst case batch production and all reactors (except Emulsion Reactor Train) consist of vents that are used to remove air from the equipment prior to batch processing to preserve the quality of the chemicals products. The exhausted air goes through a scrubber tank filled with the material specific to the process.

(n) Sixteen (16) storage tanks:

(1) Tank ESF, used for storing waste waster, with a capacity of 5,000 gallons and constructed in 2005.

(2) Tanks E5D and E5E, used for storing Alpha Methyl Styrene and Alpha Olefin, with a capacity of 10,000 gallons each and constructed in 2005.

(3) Tanks E5G, E5H, D5R, and D5S used for storing Polymethyl Hydrogen Siloxane, two (2) with a capacity of 8,000 gallons each, and two (2) with a capacity of 3,000 gallons, and constructed in 2005.

(4) Tanks E5I, E5K, D5M, and D5N used for storing Paintable Silicone, one with a capacity of 8,000 gallons and three (3) with a capacity 6,000 gallons each and constructed in 2005.

(5) Tanks E5J, E5L, and D5Q used for storing Silicone Emulsion, with a capacities of 8,000, 6,000 and 3,000 gallons, respectively, and constructed in 2005.

(6) Tanks E5O and D5P, used for storing Silicone Emulsion, with a capacity of 3,000 gallons each and constructed in 2005.

Existing Approvals

There are no previous approvals issued to this source.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on January 27, 2005, with additional information received on February 22, 2005 and March 2, 2005.

Emission Calculations

See Appendix A of this document for detailed emission calculations (Appendix A, pages 1 through 5).Potential to Emit of the Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential to Emit (tons/year)
PM	0.59
PM10	0.59
SO_2	0.05
VOC	0.67
CO	6.51
NO_x	7.75

HAPs	Potential to Emit (tons/year)
Single HAP	<10
Combination of HAPs	<25

(a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of all criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(d)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3. An exemption will be issued.

(b) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-1.1-1(16)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.

County Attainment Status

The source is located in Porter County.

Pollutant	Status
PM10	Attainment
SO_2	Unclassifiable
NO_2	Attainment
1-hour Ozone	Severe Nonattainment
8-hour Ozone	Severe Nonattainment
CO	Attainment
Lead	Attainment

(a) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone.

(1) On January 26, 1996 in 40 CFR 52.777(i), the U.S. EPA granted a waiver of the requirements of Section 182(f) of the CAA for Lake and Porter Counties, including the lower NOx threshold for nonattainment new source review. Therefore, VOC emissions alone are considered when evaluating the rule applicability relating to the 1-hour ozone standards. Porter County has been designated as nonattainment in Indiana for the 1-hour ozone standard. Therefore, VOC emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

(2) VOC and NOx emissions are considered when evaluating the rule applicability relating to the 8-hour ozone standard. Porter County has been designated as nonattainment for the 8-hour ozone standard. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

(b) Porter County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(c) Fugitive Emissions
Since this type of operation is one of the 28 listed source categories under 326 IAC 2-2 or 2-3, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are counted toward determination of PSD and Emission Offset applicability.

Source Status

Existing Source PSD, Part 70, or FESOP Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	0.07
PM10	0.07
SO_2	0.01
VOC	0.14
CO	0.83
NO_x	0.98
Single HAP	<10
Combination of HAPs	<25

(a) This existing source is not a major stationary source because even though it is one of the 28 listed source categories no attainment regulated pollutant is emitted at a rate of 100 tons per year or more.

(b) This existing source is not a major stationary source because no nonattainment regulated pollutant is emitted at a rate of 100 tons per year.

(c) These emissions were based on potential to emit calculations for the source (see Appendix A).

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(a) each criteria pollutant is less than 100 tons per year,

(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and

(c) any combination of HAPs is less than 25 tons per year.

This is the first air approval issued to this source.

Federal Rule Applicability

(a) The requirements of the New Source Performance Standard, 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (326 IAC 12) are not applicable to the four (4) natural gas-fired boilers, because each boiler has a maximum heat input capacity less than ten (10) MMBtu per hour.

(b) The requirements of the New Source Performance Standard, 40 CFR 60, Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generating Units for Which Construction is Commenced After August 17, 1971 (326 IAC 12), are not applicable to the four (4) natural gas-fired boilers because each boiler has a maximum heat input capacity less than 250 MMBtu per hour.

(c) The requirements of the New Source Performance Standard, 40 CFR 60, Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (326 IAC 12), are not applicable to the four (4) natural gas-fired boilers because each boiler has a maximum heat input capacity less than 100 MMBtu per hour.

(d) The requirement of the New Source Performance Standard, 40 CFR 60.110b

Subpart Kb - Standards of Performance for VOL Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, and Modification commenced after July 23, 1984 are not applicable to the bulk organic storage tanks (identified as Tanks E5D and E5E) because their individual capacities (10,000 gallon) are less than 75 cubic meters (19,813 gallons).

Note: In the recent revisions to 40 CFR 60, Subpart Kb promulgated on October 15, 2003, EPA raised the tank capacity applicability threshold from 40 cubic meters to 75 cubic meters. However, 326 IAC 12 and 326 IAC 1-1-3 specifically state that the July 1, 2002 version of 40 CFR 60, Subpart Kb must be applied to storage tanks in Indiana. Storage tanks with capacities greater than 40 cubic meters but less than 75 cubic meters will be subject to the July 1, 2002 version of this NSPS, but not subject to the revised NSPS. A discussion of the applicability of the July 1, 2002 version of 40 CFR 60, Subpart Kb is included in the “State Rule Applicability” section of this document.

(e) The requirement of the New Source Performance Standard, 40 CFR 60, Subpart III – Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes are not applicable to the source because it does not utilize an air oxidation unit process or manufacture any of the chemicals listed under 40 CFR 60.617.

(f) The requirement of the New Source Performance Standard, 40 CFR 60, Subpart NNN – Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations are not applicable because although the source utilizes distillation units, the processes are designed and operated as batch operations (defined as “a non-continuous distillation operation in which a discrete quantity or batch of liquid feed is charged into a distillation unit and distilled at one time. After the initial charging of the liquid feed, no additional liquid is added during the distillation operation”), which are exempt from the provisions of this rule [40 CFR 60.667].

(g) The requirement of the New Source Performance Standard, 40 CFR 60, Subpart RRR - Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes are not applicable because the reactor processes at the source are designed and operated as batch operations (defined as “any non-continuous reactor process that is not characterized by steady-state conditions and in which reactants are not added and products are not removed simultaneously”), which are exempt from the provisions of this rule [40 CFR 60.700(c)].

(h) There are no other New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in this exemption.

(i) The requirements of the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR Part 63, Subpart DDDDD are not applicable to this source because this source is not a major source of hazardous air pollutants (HAPs).

(j) The requirements of the National Emission Standards for Hazardous Air Pollutants for Miscellaneous Organic Chemical Production and Processes (MON), 40 CFR Part 63, Subpart FFFF are not applicable to this source because this source is not a major source of hazardous air pollutants (HAPs).

(k) The requirements of the National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry 40 CFR Part 63, Subpart F are

not applicable to this source because this source is not a major source of hazardous air pollutants (HAPs).

(l) The requirements of the National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, Wastewater 40 CFR Part 63, Subpart G are not applicable to this source because this source is not a major source of hazardous air pollutants (HAPs).

(m) The requirements of the National Emission Standards for Hazardous Air Pollutants for Equipment Leaks 40 CFR Part 63, Subpart H are not applicable to this source because this source is not a major source of hazardous air pollutants (HAPs).

(n) The requirements of the National Emission Standards for Hazardous Air Pollutants for Certain Processes Subjected to the Negotiated Regulation for Equipment Leaks 40 CFR Part 63, Subpart I are not applicable to this source because this source is not a major source of hazardous air pollutants (HAPs).

(o) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs), (326 IAC 14, 326 IAC 20, 40 CFR 61, or 40 CFR 63) included in this exemption.

State Rule Applicability – Entire Source

326 IAC 2-6 (Emission Reporting)

This source is located in Porter County and its not required to operate under Part 70 Permit. Therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in the permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

Surtec, Inc. was built in 1995 and it is in one (1) of the twenty-eight (28) listed source categories. At the time of construction, the potential to emit of all criteria pollutants from the entire source was less than 100 tons per year. The Permittee processes hazardous raw materials in reactor trains which are engineered to be closed systems such that it limits the exposure of HAPs. These reactor trains consist of tanks and heat exchangers and process materials in batch processes. The chemicals manufactured are used in coatings, floor wax, inks, cosmetics, and plastics. Analytical equipment is used to verify that the reaction is complete before cooling and opening of the reactors. The Permittee requested addition of four (4) reactor trains, four (4) natural gas-fired boilers and sixteen (16) storage tanks at their existing plant. After this modification, the source's potential to emit of all criteria pollutants remain less than 100 tons per year. Therefore, the requirements of 326 IAC 2-2 (PSD) are not applicable.

326 IAC 2-3 (Emission Offset)

Surtec, Inc. was built in 1995 and it is in one (1) of the twenty-eight (28) listed source categories. The source does not have a potential to emit VOC equal to or greater than 25 tons per year. The Permittee submitted an application on January 27, 2005 requesting the construction and operation of new reactor trains at their existing fine performance chemicals manufacturing plant. After this modification, the source's potential to emit of all of VOC criteria pollutants remain less than 25 tons per year. Therefore, the requirements of 326 IAC 2-3 (Emission Offset) are not applicable.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The operation of this fine performance chemical manufacturing plant, including the construction and operation of new reactor trains do not result in potential to emit of a single or combination of HAPs equal to or greater than ten (10) and twenty-five (25) tons per year, respectively. Therefore, the provisions of 326 IAC 2-4.1 are not included.

State Rule Applicability – Reactor Trains

326 IAC 8-1-6 (New Facilities: General Reduction Requirements)

The reactor trains are not subject to the requirements of 326 IAC 8-1-6 (New Facilities: General Reduction Requirements) because these operations do not result in potential VOC emissions equal to or greater than 25 tons per year.

326 IAC 7-4-14 (Porter County SO_2 Emission Limitations)

The Permittee is not subject to the provisions of 326 IAC 7-4-14 (Porter County SO_2 Emission Limitations) because none of the emission units at the source are under this rule.

326 IAC 8-7 (Specific VOC Reduction Requirements for Lake, Porter, Clark and Floyd Counties)

The reactor trains located in Porter County are not subject to this rule because the total potential to emit of VOC from the reactor trains and the entire source is less than ten (10) and twenty-five (25) tons per year, respectively.

State Rule Applicability – Natural Gas-Fired Boilers

326 IAC 6-2-4(a) (Particulate Emissions Limitations for Sources of Indirect Heating)

(a) Pursuant to 326 IAC 6-2-4(a)(Particulate Emission Limitations for Sources of Indirect Heating), the particulate emissions from the one (1) natural gas fired boiler (identified as Boiler 1) with maximum heat input capacity of 2.243 MMBtu per hour, which was existing and in operation after September 21, 1983, was calculated to be 0.88 pounds per MMBtu heat input.

This limitation is based on the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

where:
Pt = pounds of particulate matter emitted per million Btu (lbs per MMBtu)
Q = total source heat input capacity rating in MMBtu per hour

However, 326 IAC 6-2-4(a) also states that for boilers with heat input capacity less than ten (10) MMBtu per hour, the pounds of particulate matter emitted per million Btu heat input shall not exceed 0.6 pounds per MMBtu. Since 0.6 pounds per MMBtu heat input is less than the limit calculated above for Boiler 1 shall be limited to 0.6 pounds of particulate matter per MMBtu heat input.

(b) Pursuant to 326 IAC 6-2-4(a)(Particulate Emission Limitations for Sources of Indirect Heating), the particulate emissions from the three (3) natural gas fired boilers (identified

as Boiler 2, 3, and 4) with maximum combined heat input capacity of 15.45 MMBtu per hour, which was existing and in operation after September 21, 1983, shall each be limited to 0.54 pounds of MMBtu heat input.

This limitation is based on the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

where:
Pt = pounds of particulate matter emitted per million Btu (lbs per MMBtu)
Q = total source heat input capacity rating in MMBtu per hour

State Rule Applicability – Storage Tanks

326 IAC 8-9 (Volatile Organic Storage Vessels)

(a) The two (2) bulk organic storage tanks (Tanks E5D and E5E) each having a capacity of 10,000 gallons are subject to 326 IAC 8-9 (Volatile Organic Storage Vessels) because they are located in Porter County. Since the storage capacities are each less than 39,000 gallons each, the Permittee is subject only to the recordkeeping and reporting requirement in 326 IAC 8-9-6(b). The Permittee shall maintain a record for the life of the vessel and submit to the department a report containing the following information:

(1) The vessel identification;

(2) The vessel dimensions; and

(3) The vessel capacity.

(b) The seventeen (17) storage tanks located in Porter county, are not subject to the provisions of 326 IAC 8-9 (Volatile Organic Storage Vessels) because these tanks do not store volatile organic materials. They are used for storing deionized DI water, chilled water, waste water, and polymethyl hydrogen siloxane.

326 IAC 12 (New Source Performance Standards)

Pursuant to 326 IAC 12 and 326 IAC 1-1-3, storage tanks which store organic liquids must be reviewed pursuant to the July 1, 2002 version of 40 CFR Part 60, Subpart Kb. As a result, although constructed after July 23, 1984, the two (2) VOL storage tanks, having a capacity of 10,000 gallons are not subject to the requirements of 326 IAC 12 because they each have a capacity less than 40 m^3 (10,567 gallons).

Conclusion

The operation of this fine performance chemicals manufacturing plant shall be subject to the conditions of the attached Exemption No. 127-20607-00105.

Appendix: Emission Calculations
Existing Reactor Trains

Company Name: Surtec, Inc.
Address: 5907 Murvihill Road, Valparaiso, Indiana 46383
Exemption: 127-20607
Plt ID: 127-00105
Reviewer: ERG/SD
Date: April 6th, 2005

Emission Unit	Material Content	Emission Rate (ppm)	Emission Rate (cfm)	Charge Time (minutes/day)	PTE of VOC (tons/year)	PTE of HAPs (tons/year)
Closed Reactor Train	Formaldehyde	5	2	40	0.0046	0.0046
	Benzyl Chloride	5	2	40	0.0046	0.0046
	Alpha Methyl Styrene	10	2	200	0.0456	0.0456
	Chlorinated Ether	5	2	100	0.0114	0.0114
Vacuum Strip Reactor	Acetic Anhydride	5	2	30	0.0034	0.0034
	Hexamethyl Disiloxane	0.01	2	15	0.0000	0.0000
	IPA	5	2	30	0.0034	0.0034
Condensation Reactor Train	Ammonia	5	2	40	0.0046	0.0046
Emulsion Reactor Train	Precipitated Silica	2	2	20	0.0009	0.0009
Storage Tanks	Alpha Methyl Styrene	1	1	40	0.0005	0.0005
Tank Purge & Vacuum	Toluene	5	2	20	0.0023	0.0023
					0.0811	**0.0811**

1 ppm = 0.000624 lb per cubic feet for water.
Note 1: The emissions rate (as provided by the source) were determined using Photo-ionization Detector (PID) to measure actual hydrocarbon concentrations in the discharge lines from e
Note 2: The Permittee identified their 24 hour period batch production cycles and derived the PTE based on the highest emitting combination of batch production cycles (worst case basis)
Note 3: The Permittee can run one batch of each product per 24 hour period, due to sequential processes (manufacturing, quality control, filling, and cleaning).
Note 4: Charge time is equal to the total fugitive emission time per 24 hour period batch production.

METHODOLOGY
PTE of VOC/HAPs (tons/year) = Emission rate (ppm) * Air flow rate (ft^3/min) * Charge Time (min/day) * 0.0000624 lb/ ft^3 * 365 days/year * 1 ton/2000 lbs.

Appendix: Emission Calculations
New Reactor Trains

Company Name: Surtec, Inc.
Address: 5907 Murvihill Road, Valparaiso, Indiana 46383
Exemption: 127-20607
Plt ID: 127-00105
Reviewer: ERG/SD
Date: April 6th, 2005

Emission Unit	Material Content	Emission Rate (ppm)	Emission Rate (cfm)	Charge Time (minutes/day)	PTE of VOC (tons/year)	PTE of HAPs (tons/year)
Closed Reactor Train	Formaldehyde	5	2	80	0.0091	0.0091
	Benzyl Chloride	5	2	80	0.0091	0.0091
	Alpha Methyl Styrene	10	2	400	0.0911	0.0911
	Chlorinated Ether	5	2	200	0.0228	0.0228
Vacuum Strip Reactor	Acetic Anhydride	5	2	60	0.0068	0.0068
	Hexamethyl Disiloxane	0.01	2	30	0.0000	0.0000
	IPA	5	2	60	0.0068	0.0068
Condensation Reactor Train	Ammonia	5	2	80	0.0091	0.0091
Emulsion Reactor Train	Precipitated Silica	2	2	40	0.0018	0.0018
Storage Tanks	Alpha Methyl Styrene	1	1	80	0.0009	0.0009
Tank Purge & Vacuum	Toluene	5	2	40	0.0046	0.0046
					0.162	**0.162**

1 ppm = 0.000624 lb per cubic feet for water.
Note 1: The emissions rate (as provided by the source) were determined using Photo-ionization Detector (PID) to measure actual hydrocarbon concentrations in the discharge lines from
Note 2: The Permittee identified their 24 hour period batch production cycles and derived the PTE based on the highest emitting combination of batch production cycles (worst case basis)
Note 3: The Permittee can run one batch of each product per 24 hour period, due to sequential processes (manufacturing, quality control, filling, and cleaning).
Note 4: Charge time is equal to the total fugitive emission time per 24 hour period batch production.

METHODOLOGY
PTE of VOC/HAPs (tons/year) = Emission rate (ppm) * Air flow rate (ft^3/min) * Charge Time (min/day) * 0.0000624 lb/ ft^3 * 365 days/year * 1 ton/2000 lbs.

Appendix A: Emission Calculations
Natural Gas Combustion Only
Five (5) Boilers

Company Name: Surtec, Inc.
Address: 5907 Murvihill Road, Valparaiso, Indiana 46383
Exemption: 127-20607
Plt ID: 127-00105
Reviewer: ERG/SD
Date: April 6th, 2005

Heat Input Capacity MMBtu/hour		Potential Throughput MMCF/year
17.7	(6 Units Only)	155

Pollutant

	PM*	PM10*	SO_2	** NO_x	VOC	CO
Emission Factor (lb/MMCF)	7.6	7.6	0.6	100	5.5	84.0
Potential To Emit (tons/year)	0.59	0.59	0.05	7.75	0.43	6.51

*PM and PM10 emission factors are filterable and condensable PM and PM_{10} combined.
** Emission factor for NOx (Uncontrolled) = 100 lb/MMCF.

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (July, 1998).

METHODOLOGY
Potential Throughput (MMCF/year) = Heat Input Capacity (MMBtu/hour) * 8760 hours/year * 1 MMCF/1000 MMBtu
Potential To Emit (tons/year) = Potential Throughput (MMCF/year) * Emission Factor (lb/MMCF) * 1 ton/2000 lbs

See next page for HAPs emissions calculations.

Appendix A: Emission Calculations
Natural Gas Combustion Only
Five (5) Boilers

Company Name: Surtec, Inc.
Address: 5907 Murvihill Road, Valparaiso, Indiana 46383
Exemption: 127-20607
Plt ID: 127-00105
Reviewer: ERG/SD
Date: April 6th, 2005

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor (lb/MMCF)	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential To Emit (tons/year)	1.63E-04	9.30E-05	5.81E-03	1.39E-01	2.63E-04

HAPs - Metals

	Lead	Cadmuim	Chromium	Manganese	Nickel
Emission Factor (lb/MMCF)	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential To Emit (tons/year)	3.87E-05	8.52E-05	1.08E-04	2.94E-05	1.63E-04

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors as provided above are from AP-42, Chapter 1.4, Table 1-4.2, 1.4-3 and 1.4-4 (July, 1998).
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix: Emission Calculations
Summary

Company Name: Surtec, Inc.
Address: 5907 Murvihill Road, Valparaiso, Indiana 46383
Exemption: 127-20607
Plt ID: 127-00105
Reviewer: ERG/SD
Date: April 6th, 2005

Emission Unit	PM	PM10	SO_2	NOx	VOC	CO
Existing Reactor Trains					8.11E-02	
New Reactor Trains					0.16	
Four Boilers	0.59	0.59	0.05	7.75	0.43	6.51
	0.59	**0.59**	**0.05**	**7.75**	**0.67**	**6.51**