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TO: Interested Parties / Applicant
DATE: March 8, 2006
RE: Belden CDT / 177-22394-00109
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
Office of Air Quality**

Technical Support Document (TSD) for an Exemption

Source Background and Description

Source Name:	Belden CDT, Inc., Electronics Division
Source Location:	2200 U.S. Highway 27 South, Richmond, Indiana 47374
County:	Wayne
SIC Code:	3357
Exemption No.:	177-22394-00109
Permit Reviewer:	ERG/SD

The Office of Air Quality (OAQ) has reviewed an application from Belden CDT, Inc., Electronics Division (Belden) relating to the operation of a stationary copper wire and cable manufacturing plant.

History

On December 15, 2005, Belden submitted an application to IDEM, OAQ requesting an approval for operation of a stationary copper wire and cable manufacturing plant located at 2200 U.S. Highway 27 South, Richmond, Indiana. The plant operations consist of extruding plastic jackets on copper wire, which is brought onsite on spools as raw material. This will be the first approval issued to this source.

The Permittee has indicated that Belden has similar operations at 350 N.W. N Street, Richmond, Indiana, which is currently operating under MSOP No.: 177-11735-00003, issued October 24, 2000 and located at a distance of approximately five (5) miles. IDEM, OAQ has evaluated the submitted information and concluded that the two (2) plants should be considered as separate sources.

Source Definition

Belden has two (2) plants located in Richmond, Indiana:

- (a) Plant 1 is located at 350 N.W. N Street, Richmond, Indiana
- (b) Plant 2 is located at 2200 U.S. Highway 27 South, Richmond, Indiana

IDEM, OAQ has determined that although Plant 1 and Plant 2 are owned by the same company, have the same operations, operate under the same SIC, and the shortest distance between the two (2) properties is approximately five (5) miles, the output shared between the plants is not significant (i.e. less than five percent (5%)). Therefore, the two (2) plants are not collocated.

Exempt Emission Units and Pollution Control Equipment

The source consists of the following exempt emission units and pollution control devices:

- (a) One (1) plastic extrusion process consisting of one (1) mixer/blender, nine (9) extruder lines, and one (1) holding hopper, utilizing thermoplastics (in pellet form) and color chips

with a maximum throughput rate of 15.6 pounds of material per hour. These units were installed in 1980.

- (b) Five (5) inkjet printing units used to print coding on wires and cables with a combined maximum usage rate of 26 gallons of ink per year. These units were installed in 1980.
- (c) One (1) cold cleaner process with a storage tank capacity of 10 gallons, utilizing non-halogenated solvent (mineral spirits) to perform solvent degreasing of miscellaneous parts at a maximum usage rate of 55 gallons of solvent per year. This unit was installed in 1989.
- (d) One (1) natural gas-fired boiler (identified as B1) with a maximum heat input capacity of 0.53 MMBtu per hour. This unit was installed in 1980.
- (e) Two (2) natural gas-fired boilers (identified as B2 and B3) each with a maximum heat input capacity of 0.65 MMBtu per hour. These units were installed in 1980.
- (f) One (1) natural gas-fired boiler (identified as B4) with a maximum heat input capacity of 0.89 MMBtu per hour. This unit was installed in 1984.
- (g) Four (4) natural gas-fired space heaters with a combined maximum heat input capacity of 2.28 MMBtu per hour.
- (h) One (1) abrasive blasting cabinet used to remove plastic residue from the metal extruder heads, utilizing glass beads with a maximum throughput rate of 1.06 pounds per hour and particulate emissions controlled by dust collector and exhausting inside the building.

Existing Approvals

No previous approvals have been issued to this plant.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the 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 December 15, 2005, with additional information received on January 23, 2005.

Emission Calculations

See Appendix A of this document for detailed emission calculations (Appendix A, page 1 through 10).

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	1.73
PM10	1.86
SO ₂	0.01
VOC	4.16
CO	1.81
NO _x	2.15

HAPs	Potential to Emit (tons/year)
Benzene	6.88E-05
Dichlorobenzene	3.93E-05
Formaldehyde	2.46E-03
Hexane	5.90E-02
Toluene	1.11E-04
Acrolein	4.11E-07
Acetaldehyde	4.52E-06
MEK	2.33E-06
Acrylic Acid	6.84E-07
Propionaldehyde	9.58E-07
Total	6.17E-02

- (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(e)(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. An exemption will be issued.
- (c) Fugitive Emissions
 Since this type of operation is not in one (1) of the twenty-eight (28) listed source categories under 326 IAC 2-2, and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

County Attainment Status

The source is located in Wayne County.

Pollutant	Status
PM10	Attainment
PM 2.5	Attainment
SO ₂	Attainment
NO ₂	Attainment
1-hour Ozone	Attainment
8-hour Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Wayne County has been classified as unclassifiable or attainment for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM2.5 emissions. Therefore, until the U.S. EPA adopts specific provisions

for PSD review for PM2.5 emissions, it has directed States to regulate PM10 emissions as surrogate for PM2.5 emissions. See the State Rule Applicability – Entire Source section.

- (b) Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone standards. Wayne County has been designated as attainment for the 8-hour ozone standard. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration, 326 IAC 2-2. See the State Rule Applicability - Entire Source section.
- (c) Wayne 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. See the State Rule Applicability - Entire Source section.

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	1.73
PM10	1.86
SO ₂	0.01
VOC	4.16
CO	1.81
NO _x	2.15
Single HAP	<10
Combination HAPs	<25

- (a) This existing source is not a major stationary source (under PSD) because no regulated pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories.
- (b) These emissions were based on the 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 New Source Performance Standard (NSPS), 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam

Generating Units (326 IAC 12) are not included in this exemption for the natural gas-fired boilers (identified as B1, B2, B3 and B4). This NSPS applies only to boilers or process heaters with a maximum heat input capacity greater than ten (10) MMBtu per hour. The natural gas-fired boilers at the source operate at a maximum heat input capacity of less than 10 MMBtu per hour each.

- (b) The requirements of the New Source Performance Standard (NSPS), 40 CFR 60, Subpart QQ - Standards of Performance for the Graphic Arts Industry: Publication Rotogravure Printing (326 IAC 12), are not included in this exemption because this NSPS applies only to rotogravure printing presses. Belden does not operate any rotogravure presses at their plant.
- (c) The requirements of the New Source Performance Standard, 326 IAC 12, (40 CFR 60.110b, Subpart Kb) are not included in this exemption for the one (1) 10 gallon capacity organic storage tank because its capacity is less than 75 cubic meters (19,813 gallons).

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

- (d) The requirements of 40 CFR Part 63, Subpart KK - National Emission Standards for the Printing and Publishing Industry (NESHAP)(326 IAC 20) are not included in this exemption because this source is not a major source of hazardous air pollutants (HAPs).
- (e) The requirements of 40 CFR 63, Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, are not included in this exemption for the boilers (identified as B1, B2, B3 and B4) because this source is not a major source of HAPs.
- (f) The requirements of 40 CFR 63, Subpart T - National Emission Standards for Hazardous Air Pollutants for Halogenated Solvent Cleaning (326 IAC 14) are not included in this exemption because the Permittee utilizes only non-halogenated solvents in the one (1) cold cleaner process.
- (g) The requirements of 40 CFR Part 63, Subpart PPPP - National Emission Standards for Hazardous Air Pollutants: Surface Coating of Plastic Parts and Products are not included in this exemption for this source because this source is minor for HAPs.
- (h) The requirements of 40 CFR 63, Subpart MMMM - National Emissions Standards for Hazardous Air Pollutants: Surface Coating of Miscellaneous Metal Parts and Products are not included in this exemption for this source because this source is minor for HAPs.

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

State Rule Applicability – Entire Source

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

Belden's plant located at 2200 U.S. Highway 27 South, Richmond was constructed in 1980 and is not one (1) of the twenty-eight (28) source categories. At the time of construction, the potential to emit of each criteria pollutant before control was less than the 250 tons per year PSD threshold. None of the modifications after its construction resulted in potential to emit of criteria pollutants greater than 250 tons per year. Therefore, the provisions of 326 IAC 2-2 (PSD) do not apply.

326 IAC 2-6 (Emission Reporting)

The Permittee is not subject to 326 IAC 2-6 (Emission Reporting) because it is not required to have an operating permit under 326 IAC 2-7 (Part 70 program).

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

The operation of this stationary wire and cable manufacturing plant is not subject to the requirements of 326 IAC 2-4.1 because it is not a major source of HAPs.

326 IAC 8-9-1 (Volatile Organic Liquid Storage Vessels)

The Permittee is not subject to the provisions of 326 IAC 8-9-1 because it is not located in Lake, Porter, Clark or Floyd counties as listed under this rule.

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.

State Rule Applicability – Plastic Extrusion Process

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

The Permittee is not subject to the provisions of 326 IAC 8-1-6 because the potential emissions of VOC from the one (1) plastic extrusion process at this source are less than twenty-five (25) tons per year.

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

The provisions of 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes) are not applicable to the one (1) plastic extrusion process because according to 326 IAC 6-3-1(b)(14), manufacturing processes with potential emissions less than five hundred fifty-one thousandths (0.551) pounds per hour are exempt from the provisions of this rule.

326 IAC 8-2-9 (Miscellaneous Metal Coating)

The provisions of 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations) are not applicable to the extrusion process because this facility is located in Wayne County, was constructed prior to July 1, 1990, and has potential VOC emission that are less than 25 tons per year.

326 IAC 8-2-8 (Magnet Wire Coating Operations)

The Permittee is not subject to the provisions of 326 IAC 8-2-8 because it does not apply a coating of electrically insulating varnish or enamel to aluminum or copper wire for use in electrical machinery. Moreover, pursuant to 326 IAC 8-2-1(2), this facility commenced construction after January 1, 1980 and before July 1, 1990, is located in Wayne County, and does not have potential VOC emissions greater than twenty-five (25) tons per year.

State Rule Applicability – Inkjet Printers

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

The Permittee is not subject to the provisions of 326 IAC 8-1-6, because the potential emissions of VOC from the five (5) inkjet printers at this source are less than twenty-five (25) tons per year.

326 IAC 8-5-5 (Graphic Arts Operation)

The printers used at this source do not meet the definition of packaging rotogravure printers, publication rotogravure printers, or flexographic printers as defined in 326 IAC 8-5-5(b); therefore, 326 IAC 8-5-5 does not apply to the printing operations.

326 IAC 8-2-8 (Magnet Wire Coating Operations)

The Permittee is not subject to the provisions of 326 IAC 8-2-8 because it does not apply a coating of electrically insulating varnish or enamel to aluminum or copper wire for use in electrical machinery. Moreover, pursuant to 326 IAC 8-2-1(2), this facility commenced construction after January 1, 1980 and before July 1, 1990, is located in Wayne County, and does not have potential VOC emissions greater than twenty-five (25) tons per year.

326 IAC 8-2-9 (Miscellaneous Metal Coating)

The provisions of 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations) are not applicable to the inkjet printers because the printers are not used to apply ink to metal parts or wires.

State Rule Applicability – One (1) Abrasive Blasting Cabinet

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)The provisions of 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes) are not applicable to the one (1) abrasive blasting cabinet because according to 326 IAC 6-3-1(b)(14), manufacturing processes with potential emissions less than five hundred fifty-one thousandths (0.551) pounds per hour are exempt from the provisions of this rule. The one (1) abrasive blasting cabinet has potential to emit of particulate equal to 0.39 pounds per hour before controls.

State Rule Applicability – One (1) Cold Cleaner

326 IAC 8-3 (Organic Solvent Degreasing Operation)

The cold cleaner degreaser is subject to the requirements of 326 IAC 8-3-2 (Cold Cleaner Operations) because it was constructed after January 1, 1980.

- (a) Pursuant to 326 IAC 8-3-2, the Permittee shall:
- (1) Equip the cleaner with a cover;
 - (2) Equip the cleaner with a facility for draining cleaned parts;
 - (3) Close the degreaser cover whenever the parts are not being handled in the cleaner;
 - (4) Drain cleaned parts for at least fifteen (15) second or until dripping ceases;
 - (5) Provide a permanent, conspicuous label summarizing the operation requirements;
 - (6) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.
- (b) The Permittee is not subject to the requirements of 326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control) because the cold cleaner degreaser was installed prior to of July 1, 1990 and is not located in Clark, Elkhart, Floyd, Lake, Marion, Porter, or St. Joseph Counties. [326 IAC 8-3-1(b) (1) and (2)].

State Rule Applicability – Boilers

326 IAC 6-2-3 (a) (Particulate Emissions Limitations for Sources of Indirect Heating)

Pursuant to 326 IAC 6-2-3, the PM emission rate for the natural gas-fired boilers (identified as B1, B2, and B3) which were existing and in operation before September 21, 1983, is equal to 5.29 pounds of PM per MMBtu per heat input.

The emission rate was calculated using the following equation:

$$Pt = \frac{(c \times a \times h)}{(76.5 \times Q^{0.75} \times N^{0.25})}$$

where:

- Pt = emission rate limit (lbs per MMBtu)
- C = 50 microgram per cubic meter
- a = plume rise factor (0.67)
- Q = total source heat input capacity rating in million Btu per hour (1.83 MMBtu per hour)
- N = number of stacks (3)
- h = stack height (25 feet)

However, 326 IAC 6-2-3(e) states that boilers constructed after June 8, 1972 shall in no case exceed 0.60 pounds of PM per MMBtu heat input. Therefore, the natural gas-fired boilers (B1, B2, and B3) shall each be limited to 0.60 pounds of PM per MMBtu heat input.

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

Pursuant to 326 IAC 6-2-4(a), the PM emission limit from the natural gas-fired boiler (identified as B4) constructed after September 21, 1983 is as follows:

Emission Unit	Fuel Used	Year of Installation	Maximum Heat Input Capacity (MMBtu per hour)	Calculated PM Limit (lbs per MMBtu) *	Applicable 326 IAC 6-2-4 PM Limit (lb per MMBtu)
Boiler B4	Natural Gas	1984	2.72	0.84	0.60**

* This limitation is based on the following equation:

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

Where

- Pt = emission rate limit (lbs per MMBtu)
- Q = total source heat input capacity rating in million Btu per hour (MMBtu/hour)

** 326 IAC 6-2-4(a) also states that an indirect heating unit having a total source heat input capacity less than ten (10) MMBtu per hour shall in no case exceed 0.60 pounds of PM per MMBtu heat input. Since the 0.60 pounds PM per MMBtu emission limit is less than the limit calculated above for the one (1) natural gas-fired boiler (identified as B4) with a total source heat input capacity of 2.72 MMBtu per hour, the one (1) natural gas-fired boiler (B4) shall be limited to 0.60 pounds of PM per MMBtu heat input.

State Rule Applicability - Natural Gas-Fired Space Heaters

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

The natural gas-fired space heaters are not subject to the provisions of 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes) because according to 326 IAC 6-3-1(b)(14)

manufacturing processes with potential emissions less than five hundred fifty-one thousandths (0.551) pounds per hour are exempt from the provisions of this rule.

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

The natural gas-fired space heaters are not subject to the provisions of 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating) because these units are not indirect heating units.

Conclusion

The operation of this wire and cable manufacturing plant shall be subject to the conditions of this Exemption No.: 177-22394-00109.

**Appendix A: Emission Calculations
Natural Gas Combustion Only (MMBtu/hour < 100)
Four (4) Boilers**

Company Name: Belden CDT, Inc., Electronics Division
Address: 2200 U.S. Highway 27 South, Richmond, Indiana 47374
Exemption: 177-22394
Plt ID: 177-00109
Reviewer: ERG/SD
Date: February 23, 2006

Heat Input Capacity
(MMBtu/hour)

Potential Throughput
(MMscf/year)

2.72

23

	Pollutant					
	* PM	* PM10	SO ₂	** NO _x	VOC	CO
Emission Factor (lb/MMscf)	1.90	7.60	0.60	100	5.50	84.0
Potential To Emit (tons/year)	0.02	0.09	0.01	1.17	0.06	0.98

* PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM and PM10 combined.

**Emission factor for NO_x (Uncontrolled) = 100 lb/MMSCF.

Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1, and 1.4-2, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (July, 1998).

All Emission factors are based on normal firing.

METHODOLOGY

Potential throughput (MMscf/year) = Heat input capacity (MMBtu/hour) * 8760 hours/year * 1 MMscf/1020 MMBtu

PTE (tons/year) = Potential throughput (MMscf/year) * Emission factor (lb/MMscf) * 1 ton/2000 lbs

See next page for HAPs emissions calculations.

Appendix A: Emission Calculations
Natural Gas Combustion Only (MMBtu/hour < 100)
Four (4) Boilers

Company Name: Belden CDT, Inc., Electronics Division
Address: 2200 U.S. Highway 27 South, Richmond, Indiana 47374
Exemption: 177-22394
Pit ID: 177-00109
Reviewer: ERG/SD
Date: February 23, 2006

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor (lb/MMscf)	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential To Emit (tons/year)	2.45E-05	1.40E-05	8.76E-04	2.10E-02	3.97E-05

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor (lb/MMscf)	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential To Emit (tons/year)	5.84E-06	1.28E-05	1.64E-05	4.44E-06	2.45E-05

Methodology is the same as previous page.

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

**Appendix A: Emission Calculations
Natural Gas Combustion Only (MMBtu/hour < 100)
Four (4) Space Heaters**

Company Name: Belden CDT, Inc., Electronics Division
Address: 2200 U.S. Highway 27 South, Richmond, Indiana 47374
Exemption: 177-22394
Plt ID: 177-00109
Reviewer: ERG/SD
Date: February 23, 2006

Heat Input Capacity
(MMBtu/hour)

Potential Throughput
(MMscf/year)

2.28

19.6

	Pollutant					
	* PM	* PM10	SO₂	** NO_x	VOC	CO
Emission Factor (lb/MMscf)	1.90	7.60	0.60	100	5.50	84.0
Potential To Emit (tons/year)	0.02	0.07	0.01	0.98	0.05	0.82

* PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM and PM10 combined.

**Emission factor for NOx (Uncontrolled) = 100 lb/MMSCF.

Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1, and 1.4-2, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (July, 1998).

All Emission factors are based on normal firing.

METHODOLOGY

Potential throughput (MMscf/year) = Heat input capacity (MMBtu/hour) * 8760 hours/year * 1 MMscf/1020 MMBtu

PTE (tons/year) = Potential throughput (MMscf/year) * Emission factor (lb/MMscf) * 1 ton/2000 lbs

See next page for HAPs emissions calculations.

Appendix A: Emission Calculations
Natural Gas Combustion Only (MMBtu/hour < 100)
Four (4) Space Heaters

Company Name: Belden CDT, Inc., Electronics Division
Address: 2200 U.S. Highway 27 South, Richmond, Indiana 47374
Exemption: 177-22394
Pit ID: 177-00109
Reviewer: ERG/SD
Date: February 23, 2006

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor (lb/MMscf)	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential To Emit (tons/year)	2.06E-05	1.17E-05	7.34E-04	1.76E-02	3.33E-05

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor (lb/MMscf)	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential To Emit (tons/year)	4.90E-06	1.08E-05	1.37E-05	3.72E-06	2.06E-05

Methodology is the same as previous page.

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

**Appendix A: Emission Calculations
VOC, CO and PM Emission Calculations
From Nine (9) Extruders**

Company Name: Belden CDT, Inc., Electronics Division

Address: 2200 U.S. Highway 27 South, Richmond, Indiana 47374

Exemption: 177-22394

Plt ID: 177-00109

Reviewer: ERG/SD

Date: February 23, 2006

Emission Units	Material	Max. Material Usage (lbs/hour)	Emission Factor (lb VOC/MM lb Material)	PTE of VOC (tons/year)	Emission Factor (lb CO/MM lb Material)	PTE of CO (tons/year)	Emission Factor (lb PM/MM lb Material)	PTE of PM (tons/year)
Nine Extruders	Polyvinyl Chloride (PVC)	11.7	63.0	3.23E-03	40	2.05E-03	NA	0.00
	Polyethylene (PE)	1.56	35.3	2.42E-04	50	3.42E-04	31.0	2.12E-04
	Polypropylene (PP)	1.56	819	5.61E-03	100	6.84E-04	653	4.47E-03
	Teflon	0.78	NA	3.42	NA	0.00	NA	0.00
		15.6	Total =	3.43		3.08E-03		4.68E-03

Note:

Emission factors for PVC processing is taken from "Process Emissions for Vinyl Pipe Industry", Journal of Vinyl & Additive Technology, Vol 2, No.3, 09/96.

Emission factors for PE processing were calculated using an equation from the "Development of Emission Factors for Polyethylene Processing", Journal of Air & Waste Management Association, Vol 46, 06/96.

Emission factors for PP processing is taken from "Development of Emission Factors for Polypropylene Processing", Journal of Air & Waste Management Association, Vol 49, 01/99.

There are no emission factors available for Teflon processing. Therefore, it was assumed all material used is emitted as VOC.

CO emission factor for all thermoplastics is taken from "Volatile Emissions During Thermoplastics Processing - A Review," Advances in Polymer Technology, Vol 14 No. 1, 1995.

Assume all PM emissions are equal to PM10.

METHODOLOGY

$PTE \text{ (tons/year)} = \text{Maximum Material Usage (lbs/year)} * \text{Emission Factor (lb Pollutant/MM lb Material)} * 1 \text{ MM lb}/10^6 \text{ lb} * 1 \text{ ton}/2000 \text{ lbs}$

Appendix A: Emission Calculations
HAP Emission Calculations
From Nine (9) Extruders

Company Name: Belden CDT, Inc., Electronics Division
Address: 2200 U.S. Highway 27 South, Richmond, Indiana 47374
Exemption: 177-22394
Plt ID: 177-00109
Reviewer: ERG/SD
Date: February 23, 2006

Emission Units	Material	Max. Material Usage (lbs/year)	Emission Factors of HAPs in lb HAP/MM lb Material Processed					
			Formaldehyde	Acrolein	Acetaldehyde	MEK	Acrylic Acid	Propionaldehyde
Nine Extruders	Polyvinyl Chloride (PVC)	102,656	There are no HAP emission factors available for PVC Processing.					
	Polyethylene (PE)	13,688	0.10	0.01	0.12	0.10	0.02	0.07
	Polypropylene (PP)	13,688	1.38	0.05	0.54	0.24	0.08	0.07
	Teflon	6,844	There are no HAP emission factors available for Teflon Processing.					

Emission Units	Material	Max. Material Usage (lbs/year)	Potential To Emit of HAPs in tons per year					
			Formaldehyde	Acrolein	Acetaldehyde	MEK	Acrylic Acid	Propionaldehyde
Nine Extruders	Polyvinyl Chloride (PVC)	See Above	0.0					
	Polyethylene (PE)		6.84E-07	6.84E-08	8.21E-07	6.84E-07	1.37E-07	4.79E-07
	Polypropylene (PP)		9.44E-06	3.42E-07	3.70E-06	1.64E-06	5.48E-07	4.79E-07
	Teflon							
Total =			1.01E-05	4.11E-07	4.52E-06	2.33E-06	6.84E-07	9.58E-07
Combination of HAPs =			1.90E-05					

Note:

Emission factors for PVC processing is taken from "Process Emissions for Vinyl Pipe Industry", Journal of Vinyl & Additive Technology, Vol 2, No.3, 09/96.
Emission factors for PE processing were calculated using an equation from the "Development of Emission Factors for Polyethylene Processing", Journal of Air & Waste Management Association, Vol 46, 06/96.
Emission factors for PP processing is taken from "Development of Emission Factors for Polypropylene Processing", Journal of Air & Waste Management Association, Vol 49, 01/99.
There are no emission factors available for Teflon processing.

METHODOLOGY

PTE (tons/year) = Maximum Material Usage (lbs/year) * Emission Factor (lb Pollutant/MM lb Material) * 1 MM lb/10⁶ lb * 1 ton/2000 lbs

**Appendix A: Emission Calculations
VOC and HAP Emission Calculations
From Five (5) Inkjet Printers**

Company Name: Belden CDT, Inc., Electronics Division
Address: 2200 U.S. Highway 27 South, Richmond, Indiana 47374
Exemption: 177-22394
Plt ID: 177-00109
Reviewer: ERG/SD
Date: February 23, 2006

Emission Units	Material	Max. Material Usage (gal/year)	Density (lb/gal)	Weight % VOC	PTE of VOC (tons/year)	Weight % MEK	PTE of MEK (tons/year)	Weight % MIBK	PTE of MIBK (tons/year)
5 Inkjet Printers	Band Marking Extender	2.90	7.30	100%	0.011	0%	0.000	50%	0.005
	Blue Inkjet Ink	0.20	7.10	92%	0.001	88%	0.001	0%	0.000
	Orange Inkjet Ink	0.40	7.40	82%	0.001	80%	0.001	0%	0.000
	White Inkjet Ink	3.00	7.70	78%	0.009	75%	0.009	0%	0.000
	Clear Inkjet Makeup	1.60	6.70	100%	0.005	95%	0.005	0%	0.000
	1300 Wash	3.30	6.70	100%	0.011	100%	0.011	0%	0.000
	Methyl Ethyl Ketone (MEK)	14.5	6.70	100%	0.049	100%	0.049	0%	0.000
					0.43			0.38	0.03

Note: VOC and HAP emissions estimation are based on worst case ink usage with the highest VOC and HAP content.

METHODOLOGY

PTE (tons/year) = Maximum Material Usage (gal/year) * Density (lb/gal) * Weight % VOC/HAP * 1 ton/2000 lbs

**Appendix A: Emission Calculations
VOC Emission Calculations
From One (1) Parts Washer**

Company Name: Belden CDT, Inc., Electronics Division
Address: 2200 U.S. Highway 27 South, Richmond, Indiana 47374
Exemption: 177-22394
Pit ID: 177-00109
Reviewer: ERG/SD
Date: February 23, 2006

Emission Units	Material	Max. Material Usage (gal/year)	Density (lb/gal)	Weight % VOC	PTE of VOC (tons/year)
Parts Washer	Mineral Spirits	55.0	6.60	100%	0.182

METHODOLOGY

PTE of VOC (tons/year) = Maximum Material Usage (gal/year) * Density (lb/gal) * Weight % VOC * 1 ton/2000 lbs

**Appendix A: Emission Calculations
 Particulate Emission Calculations
 From Two (2) Abrasive Blasters**

Company Name: Belden CDT, Inc., Electronics Division
Address: 2200 U.S. Highway 27 South, Richmond, Indiana 47374
Exemption: 177-22394
Pit ID: 177-00109
Reviewer: ERG/SD
Date: February 23, 2006

Dust Collector Specifications		PTE of PM/PM10 (tons per year)	
		After Control	Before Control
Control Equipment = Dust Collectors		0.017	1.69
Grain Loading (grains/acf)	0.001		
Air Flow Rate (acf/m)	450		
Control Efficiency (%)	99.0%		

* Assume all PM emissions are equal to PM10.

METHODOLOGY

PTE of PM/PM10 After Control (tons/year) = Outlet grain loading (gr/acf) * Air flow rate (acf/min) * 60 min/hour * 1 lb/7000 grains * 8760 hours/year * 1 ton/2000 lbs

PTE of PM/PM10 Before Control (tons/year) = Outlet grain loading (gr/acf) * Air flow rate (acf/min) * 60 min/hour * 1 lb/7000 grains * 8760 hours/year * 1 ton/2000 lbs * 1/(1 - Control Efficiency %)

**Appendix A: Emission Calculations
Summary**

Company Name: Belden CDT, Inc., Electronics Division

Address: 2200 U.S. Highway 27 South, Richmond, Indiana 47374

Exemption: 177-22394

Plt ID: 177-00109

Reviewer: ERG/SD

Date: February 23, 2006

Potential To Emit in tons per year

Emission Unit	PM	PM10	SO ₂	NOx	VOC	CO
NG Fired Boilers	0.02	0.09	0.01	1.17	0.06	0.98
NG Fired Space Heaters	0.02	0.07	0.01	0.98	0.05	0.82
Extruders	4.68E-03	4.68E-03			3.43	0.003
Inkjet Printers					0.43	
Parts Washer					0.182	
Abrasive Blasters	1.69	1.69				
TOTAL	1.73	1.86	0.01	2.15	4.16	1.81