

STATEMENT OF BASIS

For the issuance of Air Permit # 1630-AR-6 AFIN: 16-00275

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

Thomas & Betts Corporation
5601 E. Highland Drive
Jonesboro, Arkansas 72401

3. PERMIT WRITER:

Bart Patton

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Noncurrent-Carrying Wiring Device Manufacturing
NAICS Code: 335932

5. SUBMITTALS:

Date of Application	Type of Application (New, Renewal, Modification, Deminimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
10/13/2014	Modification	Add SN-17B (existing backup boiler), SN-29 (thread coating process), SN-52 (paint booth), SN-53 (paint mix room), and SN-54 (metallizer); return SN-09C, SN-24, and SN-30 to the permit; SN-50 op hours increased

6. REVIEWER'S NOTES:

In this modification, the following changes were made:

- 1) Add two scrubbers to the existing Emission Management System at SN-01. The source was also renamed Plating Acid Tanks and Plating Caustic Tanks (the source of the emissions) in lieu of Emission Management System (the control system for the tank emissions). With the new controls, the source's opacity limit was set to 5%.
- 2) Recalculate emissions for SN-03 and SN-04 using the latest AP-42 emission factors.
- 3) Return SN-09C to the permit. The Ammonium Chloride Dip has been on site since the beginning. It was omitted from Specific Conditions #1 and #2 when they were re-organized at Permit #1630-AR-3, but it has been in operation continuously and remained in the Process Description.
- 4) Return SN-15 and 16 to the permit. Galvanizing Combustion Stacks No. 1 and 2 (SN-15 and 16) were modified as part of Permit #1630-AR-5, but were mistakenly replaced with SN-46 in that permit. Those sources have been re-identified as Galvanizing Kettle Furnace (SN-15) and Backup Kettle Furnace (SN-16). Specific Condition #15 has been changed to refer to SN-15, SN-16, and SN-47, the primary and back-up zinc kettles and the zinc extraction system.
- 5) Add SN-17B to the permit. SN-17A is the 8.6 MMBtu/hr natural gas-fired boiler previously designated as SN-17. SN-17B is a backup boiler of the same capacity, installed in 2009, when the previous SN-17 was replaced. The facility has stated that SN-17B has not been operated simultaneously with SN-17A, but that it is physically possible to operate both boilers simultaneously.
- 6) Correct the heat rating and emissions for SN-21 and SN-22. These sources each have two 1-MMBtu/hr burners. No heat rating was given in Specific Conditions #1 and #2 in recent permits, but emissions were calculated for less than the correct amounts.
- 7) Return SN-24 to service, and reidentify it as SN-24A and SN-24B. It was removed from the permit at Permit #1630-AR-4, when it was removed from service but kept on site.
- 8) Reidentify SN-25 as SN-25A and SN-25B. Equipment and emissions are unchanged.
- 9) Add SN-29. This source number was previously used for a different purpose and removed at Permit #1630-AR-3.
- 10) Return SN-30 to the permit. The Media Blaster process was mistakenly removed from Permit #1630-AR-3 but has been in operation continuously since then.
- 11) Reidentify SN-35 as part of SN-36. SN-36 was previously identified as a 2.4 MMBtu/hr oven, but should have been identified as a 1.2 MMBtu/hr oven. Newly identified SN-36 includes one 1.2 MMBtu/hr oven used for preheating (old SN-35) and one 1.2 MMBtu/hr oven used for curing.
- 12) Remove SN-42 from the permit. SN-42 appears to have been similar or the same as SN-30, which was restored to the permit at this revision.
- 13) Remove SN-46 from the permit. SN-46 appears to have been similar or the same as SN-15, which was restored to the permit at this revision.
- 14) Delete Specific Conditions #17 and 18 for SN-50. The facility tracks annual emissions for VOCs and HAPs as part of Specific Conditions #7 and 11. Annual

- emissions for other pollutants were recalculated for 8,760 operating hours per year, to match the other gas-fired sources in the permit.
- 15) Revise Specific Condition #19 for SN-51. The usage limit on chromic acid was revised, from 2,920 gallons to 100 pounds per rolling 12-month period.
 - 16) Delete Specific Condition #21 for SN-51.
 - 17) Add new sources SN-52, SN-53, and SN-54.
 - 18) Add 24 natural gas-fired infrared heaters, 0.1 MMBtu/hr each, as an Insignificant Activity in Category A-1.
 - 19) Add Coupling Oven from the Mold line of the Fittings process, and Pre-heat and Cure Ovens from the Powder line of the Fittings process, 0.1 MMBtu/hr each, as Insignificant Activities in Category A-1.
 - 20) Move Warming Oven from Category A-13 to A-1 in the Insignificant Activities List.
 - 21) Add Acetone Strip Tanks (existing) to Category A-13 in the Insignificant Activities List.
 - 22) Revise Specific Condition #9 to allow materials of TLV equal to or greater than 1.0 mg/m³, in accordance with the most recent version of the Department's Non-Criteria Pollutant Strategy.
 - 23) Delete Specific Condition #12.

Annual emissions changed as follows: PM/PM₁₀, + 5.0 tpy; SO₂, + 0.2 tpy; CO, + 9.8 tpy; NO_x, +7.4 tpy; Acetone, +2.19 tpy; and Chromium Trioxide, -0.16 tpy.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

CAO LIS 15-012 was closed March 13, 2015. In it, the facility stated its intentions to address its exceedance of its Single HAP limit by revising its HAPs emission calculations, demanding up-to-date information from its suppliers, and initiating the implementation of a formal environmental management system.

This permit revision is not intended to satisfy that CAO, but it does address concerns related to SN-51 that were noted in the facility's March 2014 inspection. Test data has been submitted for SN-51, the source's emissions have been recalculated, the emissions limit has been reduced, and the testing condition in the previous permit has been removed.

8. PSD APPLICABILITY:

- a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N
- b) Is the facility categorized as a major source for PSD? N
 - *Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list*

If yes, explain why this permit modification is not PSD.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
None		

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. AMBIENT AIR EVALUATIONS:

a) Reserved.

b) Non-Criteria Pollutants:

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = $0.11 \times \text{TLV}$	Proposed lb/hr	Pass?
Hexavalent Chromium* (water-soluble Cr VI compounds)	0.05	0.0055	0.000014	Yes

Other HAPs were not modeled or evaluated at this time because, with the exception of HDI and MDI, the facility has not reported emitting any other HAPs with a TLV below $1.0 \text{ mg}/\text{m}^3$. Specific Condition #9 in the facility's previous permit (that is, the TLV table) allowed the use of HDI and MDI at a rate of less than 1.0 tpy, despite those pollutants' having a TLV below the previous TLV limit, because "they are not expected to rapidly volatilize and are emitted at a rate of less than 1.0 tpy...". Proper industrial use of HDI/MDI should result in most of the pollutant reacting, not being emitted. Upon inspection, if that's not the case, the facility may be in violation of Specific Condition #5.

c) No other modeling is required at this time.

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
01	Material balance and gassing factors	4.291 tpy PM loss at 2600 op hr/yr Factor of safety = 1.3; Scaled up to 8,760 op hr/yr	Acid scrubber S-01A, Alkali scrubber S-01B	97%	With Factor of Safety =1.3, and scaled up to 8760 op hr/yr from 2600, 18.793 max tpy PM loss, uncontrolled. Recalculated at R6 for new control equipment. At the facility's request, limits were not lowered from previous levels.
03, 04, 17A/B, 21, 22, 26, 28, 35, 36, 37, 50	AP-42 Tables 1.4-1,2,3	NO _x = 100 lb/MMft ³ , etc.	None	N/A	Combustion
09, 10	NYSDEC - Estimated Emissions Table A12-C	Gassing Factor = 3% to 5%	Scrubair Scrubbers 1, 2	90%	All HAPs below 1 tpy. For SN-09C, usage is 2.18 lb/hr Ammonium Chloride, 1.08 lb/hr Zinc Chloride. 2.18 x 5% gassing factor x (100%-90%) = 0.109 lb/hr Ammonium Chloride. 8,760 op hr/yr.
15	AP-42, tables 1.4-1, 2, and 3	<u>lb/MMscf</u> 7.6 PM/PM ₁₀ 0.6 SO ₂ 5.5 VOC 84 CO 100 NO _x	Baghouse	98%	2 x 1.1942 MMbtu/hr burners. 8,760 op hr/yr.

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
16			None	N/A	2 x 1.1942 MMbtu/hr burners. 8,760 op hr/yr.
23, 24, 25, 26, 27, 30, 35, 36, 38	Material Balances and MSDS	100% Evaporation 10% overspray	Donaldson Torit Cartridge for SN-27	90%	
28	Material Balances and MSDS	<u>For PM/PM₁₀</u> 85% coating transfer efficiency (for PM/PM ₁₀) 88.39% solids <u>For volatiles</u> 100% evaporation, with 50% evaporated at coating and 50 % evaporated at curing 11.6% VOC 0.023% phenol 0.37% diethylene glycol monobutyl ether	Smog Hog	99.06% double-pass efficiency (PM/PM ₁₀ only)	265.58 lb/hr, max hourly PVC coating usage. 8760 op hr/yr.
29	Material Balances	100% Evaporation 4.8% Ethylbenzene 6.6% Xylene 28.81% Mineral Spirits 5.04% Diethylene Glycol Monomethyl Ether 5.04% Propylene Glycol Monomethyl Ether 15% Methyl Ethyl Ketoxime 11.06% Aliphatic Petroleum Distillate 56% VOC 14% PM ₁₀	None	N/A	Max paint usage = 0.3 lb/hr. 8,760 op hr/yr.

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
30	Vendor info	Exhaust air flow: 10,900 dscfm Inlet Particulate Loading: 0.2 gr/dscf	Baghouse	95%	The source vents to a baghouse which vents indoors. 8,760 op hr/yr.
36	Material Balances and MSDS	For volatiles 100% evaporation, with 50% evaporated at coating and 50 % evaporated at curing 11.6% VOC 0.023% phenol 0.37% diethylene glycol monobutyl ether	None	N/A	39.35 lb/hr, max hourly PVC coating usage. 8760 op hr/yr.
42	Engineering Estimate	0.2 gr/dscfm @6,700 dscfm	Baghouse	90%	
43	Engineering Estimate	2.43 lb/hr VOC			
45	AP-42, tables 1.4-1, 2, and 3	lb/MMscf 7.6 PM/PM ₁₀ 0.6 SO ₂ 5.5 VOC 84 CO 100 NO _x	None	N/A	0.66553 MMbtu/hr; 1000 MMbtu/MMscf; 8760 op hr/yr
47			Baghouse (PM/PM ₁₀ only)	98%	2 burners x 1.1942 MMbtu/hr; 1000 MMbtu/MMscf; 8760 op hr/yr
47	11/18/09 test data at Jonesboro site, concentration of Zinc Oxide in fumes in ambient air above kettle before entering collection hood	0.9466 mg ZnO / m ³ air	Baghouse	98%	15,290 cfm, max inlet gas flow to baghouse; included in limits as PM/PM ₁₀

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
	AP-42, Table 12.14-2 for Galvanizing, SCC 3-04-008-05	5 lb PM/ton Zinc used	Baghouse	98%	Max input 400 lb zinc/hr; Max input 750 tons zinc/yr; zinc ingots contain 0.03% lead, 0.02% cadmium
48	$SA_{\text{exterior of pipe}} = 34.689 \text{ ft}^2$	4 mil (0.004") exterior coating of zinc / pipe; assumed 0.5 mil of coating emitted as PM / pipe	Baghouse	98%	$SA_{\text{exterior}} = 2 \times \text{Pi} \times \text{Outer Radius} \times \text{Length}$; $SA_{\text{exterior}} = (6.625'' \text{ OD}) \times (1' / 12'') \times (1/2, \text{ convert OD to Outer Radius}) \times 20' \text{ pipe length}$; 445.74 lb/ft ³ , density of zinc slab per MSDS; 400 pipes/hr, 8760 hr/yr
48	11/18/09 test data at Jonesboro site, concentration of Zinc Oxide in fumes in ambient air above kettle before entering collection hood	50% of SN-47's 0.9466 mg ZnO / m ³ air	Baghouse (SN-52)	98%	15,290 cfm, max inlet gas flow to baghouse; SN-48 process is some distance away from SN-47's zinc kettle, so 50% of SN-47's tested ZnO is assumed; included in limits as PM/PM ₁₀

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
49	$SA_{\text{interior of pipe}} = 31.903 \text{ ft}^2$	4 mil (0.004") interior coating of zinc / pipe; assumed 0.5 mil of coating emitted as PM / pipe	Baghouse	98%	$SA_{\text{interior}} = 2 \times \text{Pi} \times \text{Inner Radius} \times \text{Length}$; $SA_{\text{interior}} = (\text{Inner Diameter} = 6.625'' \text{ OD} - (2 \times 0.266'' \text{ wall thk})) \times (1' / 12'') \times (1/2, \text{ convert ID to Inner Radius}) \times 20' \text{ pipe length}$; 445.74 lb/ft ³ , density of zinc slab per MSDS; 400 pipes/hr, 8760 hr/yr
51	Industrial hygiene test of tank in operation	0.00006 mg/m ³ CrO ₃ detected	None	N/A	2 x 31,500 cfm exhaust fans x 0.00006 mg/m ³ CrO ₃ . Annual usage limit set by usage practices when tested.
52	Material Balances and MSDS	Paint A 0.833 gal/hr used 11.57 lb/gal 71.08 wt% solids 27.31 wt% VOC	Filter Panel	99.83%	For volatiles, 10% evap at mixing (SN-53) and 90% evap at painting (SN-52). For solids, 100% loss of PM/PM ₁₀ at painting (SN-52), 0% (SN-53), with transfer efficiency 85%.
53		Paint B 0.417 gal/hr used 8.56 lb/gal 74.94 wt% solids 25.03 wt% VOC MEK 1.56 gal/hr used 6.71 lb/gal No solids 100 wt% VOC	None	N/A	
54	Eqpt/worker capacity	75% transfer efficiency 50% loss of airborne particulate	Filter Panel	95%	13.15 lb zinc wire max usage / hour.
02	Removed at R1				

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
06, 07	Removed at R2				
11, 12	Added to SN-13 at R3				
18, 19, 20, 39, 40	Removed at R3				
05, 08, 31, 32, 33, 34, 41, 44	Removed at R4				
13	Replaced by SN-45 at R5				
14	Replaced by baghouse at R5				
10, 35, 42, 46	Removed at R6				

Acetone strip tanks were added to the Insignificant Activities List at R6. The facility reports that maximum capacity is using 14 totes of acetone in 12 months, 2200 lb of acetone per tote. Tank 1 is drained into Tank 2, then refilled every day. All acetone is assumed emitted. These acetone emissions have not been counted for fee purposes or in the Total Allowable Emissions table in the permit. This decision may need to be reviewed during future permit revisions, particularly to avoid Title V status for the facility.

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
None				

14. MONITORING OR CEMS:

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
None				

15. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Limit (as established in permit)	Frequency	Report (Y/N)
Plantwide	Coatings and Solvent usage; VOC and HAP contribution from natural gas combustion	99.0 tpy VOC	Monthly	N
		9.9 tpy Single HAP 24.9 tpy Combination HAP	Monthly	N
15, 16, 47	Zinc throughput	750 tons throughput per year	Monthly	N
51	Chromic acid usage	100 pounds per year of 100% (pure) chromic acid	Monthly	N

16. OPACITY:

SN	Opacity %	Justification (NSPS limit, Dept. Guidance, etc)	Compliance Mechanism (daily observation, weekly, control equipment operation, etc)
09, 10, 23, 24	20%	§18.501. These are uncontrolled sources, or low efficiency controls, such as paint filters.	Inspector's Observation
All other sources	5%	§18.501	Inspector's Observation

17. DELETED CONDITIONS:

Former SC	Justification for removal
12	No longer required because of latest version of Non-Criteria Pollutant Strategy
17, 18	SN-50 was recalculated for 8,760 operating hours; facility tracks VOCs and HAPs as part of SC #7 and 11
21	SN-51's emissions no longer require this flow rate to pass PAIL

18. GROUP A INSIGNIFICANT ACTIVITIES:

Source Name	Group A Category	Emissions (tpy)							
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	Acetone	HAPs	
								Single	Total
24 natural gas-fired infrared heaters, 0.1 MMBtu/hr each	A-1	0.080	0.0063	0.058	0.883	1.052		0.0190	0.0198
Coupling Oven (Mold line of the Fittings process; 0.1 MMBtu/hr)	A-1	0.004	0.0003	0.003	0.037	0.044		0.0008	0.0009
Cure Oven (Mold line of the Fittings process; 0.1 MMBtu/hr)	A-1	0.004	0.0003	0.003	0.037	0.044		0.0008	0.0009
Pre-heat Oven (Powder line of the Fittings process; 0.1 MMBtu/hr)	A-1	0.004	0.0003	0.003	0.037	0.044		0.0008	0.0009
Cure Oven (Powder line of the Fittings process; 0.1 MMBtu/hr)	A-1	0.004	0.0003	0.003	0.037	0.044		0.0008	0.0009
Total A-1		0.094	0.0074	0.068	1.031	1.227		0.0221	0.0231

Source Name	Group A Category	Emissions (tpy)							
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	Acetone	HAPs	
								Single	Total
Injection Molding	A-13	Negligible emissions per R3 application							
Chemical Recovery Room Centrifuge Exhaust	A-13	Negligible emissions per R3 application							
Chemical Mix Process Exhaust	A-13	0.71							
Pipe Primer Pre-Heat Burners (two, 0.15 MMBtu/hr each)	A-13	0.01	0.0008	0.008	0.111	0.132		0.0024	0.0025
Inside Pipe Blow-Out Booth No. 1 and No. 2	A-13	1.16							
Acetone Strip Tanks (2)	A-13						15.4		
Total A-13		1.88	0.0008	0.008	0.111	0.132	15.4	0.0024	0.0025

Some information in this table was added at R6, from information in the application dated June 29, 2004, for Permit 1630-AR-3, and in correspondence with ADEQ dated April 5, 2004.

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

List all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1630-AR-5

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Minor Source

Revised 08-26-15

Facility Name: Thomas & Betts
 Corporation
 Permit Number: 1630-AR-6
 AFIN: 16-000275

			Old Permit	New Permit
\$/ton factor	23.93	Permit Predominant Air Contaminant	194.75	196.94
Minimum Fee \$	400	Net Predominant Air Contaminant Increase	2.19	
Minimum Initial Fee \$	500			
Check if Administrative Amendment	<input type="checkbox"/>	Permit Fee \$	400	
		Annual Chargeable Emissions (tpy)	196.94	

Pollutant (tpy)	Old Permit	New Permit	Change
PM	77.7	82.7	5
PM ₁₀	77.7	82.7	5
SO ₂	2.1	2.3	0.2
VOC	99	99	0
CO	10.3	20.1	9.8
NO _x	16.4	23.8	7.4
Single HAP	9.9	9.9	0
Total HAP	24.9	24.9	0
Acetone	194.75	196.94	2.19