

**TECHNICAL REVIEW AND EVALUATION OF APPLICATION
FOR AIR QUALITY PERMIT NO. 45874**

I. INTRODUCTION

This Class II, synthetic minor permit is for the operation of Printpack Incorporated's Flexographic and packaging facility located in Prescott Valley, Yavapai County, Arizona. This is a renewal of Operating Permit #1000215.

Printpack Inc. has operated under a Class I, major source permit since the facility was first permitted. Since the historical emissions of volatile organic compounds (VOCs) for the past few years have been in the range of 65 to 70 tons per year, the source has, as part of this permitting action, accepted voluntary restrictions for VOCs and hazardous air pollutants (HAPs) to avoid classification as a major source and has become a Class II, minor source.

A. Company Information

Facility Name: Printpack Incorporated
Mailing Address: 2800 Overlook Parkway, Atlanta, GA 30339
Facility Location: 6800 E. 2nd St.
Prescott Valley, Yavapai County, AZ 86314

B. Attainment Classification (Source: 40 CFR §81.303)

Printpack is located in an area which is in attainment or unclassified for all criteria pollutants.

II. PROCESS DESCRIPTION

The process involves the flexographic printing of paper and film substrates, adhesive or extrusion lamination of individual substrates to form multi-layer package material, and the slitting of large printed rolls into narrower rolls ready for customer form and fill machinery. The following process steps and activities are involved in manufacturing flexible packaging material.

A. Ink Room:

Finished ink, drummed solvent, nitro-cellulose base, and laminating adhesives are stored in the ink room. Ink is sent to the press department for specific jobs. The ink may be finished (ready to use) or it may be mixed to specifications in the ink room by combining specific vehicles and bases. Unused ink is sent back to the ink room after a job. This ink may be used as a component in future jobs. Consequently, unused ink is

“worked off” so as to reduce spent ink use. The emissions arise from mixing of inks. These emissions are minimized through the use of covers on stored ink and on mixing vessels. The emissions are vented to the oxidizer since the ink room is part of the Permanent Total Enclosure Area (PTE).

B. Parts Washer/Still

Wash-up solvent from bulk storage is piped to the parts washer. Dirty kits and ink pans are placed on a roll-in dolly. The dolly is placed in the parts washer. Parts are spray washed and rinsed. Following the wash and the rinse cycle, off gas is vented to the oxidizer. Dirty wash-up solvent is pumped to a dirty solvent holding tank where it can be re-circulated to the parts washer for use in another wash cycle or batch processed through the still. Spent ink and solvent from the press department may also be batch processed through the still. Clean solvent is pumped back to the bulk solvent storage. Sludge is pumped into 55-gallon drums and kept in an accumulation area in preparation for waste removal. A manual parts washer is co-located with the automatic parts washer. This equipment is used to manually wash parts that do not get clean in the automatic parts washer and to wash bulk items.

Off gas from the parts washer is directed to the oxidizer. Since the wash tank area is part of PTE, all fugitive emissions are directed to the oxidizer. The still is a closed batch process type. The only vent is an emergency pressure release vent (rupture disk). The nature of the vent recommends against ducting it to the oxidizer. However, the line is ducted into a knockout drum to capture any liquid that may escape in the event of an emergency upset. The ancillary holding tanks have breathing vents which are vented inside the PTE and onto the oxidizer.

C. Bulk Solvent Storage

Bulk solvents are stored in three above ground horizontal tanks. These tanks are subdivided into several compartments for storing different formulations of process solvent. Additionally, wash-up solvent recovered from the still is stored in bulk. Bulk process solvent and wash-up solvent is piped to both the ink room and the press room. Process solvent is used to cut inks to appropriate running viscosity. Wash-up solvent is used to clean up ink spills. Additionally, wash-up solvent is piped to the automatic parts washer where it is used to clean ink kits and ink pans. Spent wash-up solvent is distilled, and reclaimed solvent is returned to bulk storage. Tank vent emissions to the atmosphere from working and breathing losses are expected. These emissions are minimized through the use of conservation vents, proper pressure relief settings, submerged fill lines, and appropriate tank coatings.

D. Waste Storage

Pumpable sludge and adhesive waste are stored in closed 55-gallon drums. These drums are stored in a diked and secured area. No emissions are generated in this area of process.

E. Raw Material Storage

Various gauges of uncoated film, metallized film, and paper are stored in raw material storage. There are no emissions from this process.

F. Press Department

Paper and film are printed by a flexographic process. Inks for the job may be precut to viscosity in the ink room thus arriving at the press ready to run. Others are cut to running viscosity at the press. Unused ink is returned to the ink room following completion of the job. Spent ink, solvent from pump purging, and clean-up is sent to the integrated still/parts washer for reclamation. The printed film is sent to in-process storage to await further processing. Emissions arise from ink spills, working ink kits, and fugitive loss from ink decks. The press room is part of the PTE and all emissions are vented to the oxidizer.

G. In Process Storage

Printed films are stored in in-process storage racks until the material is needed. Material may be sent directly to slitting or to the laminating department, depending on requirements. There are no emissions from this process.

H. Slitting

Printed and laminated film is slit to the appropriate size for customer machines. Slit material is palletized and stretch wrapped for storage. There are no emissions from this process.

I. Finished Goods Storage

Slit product is stored in multi-level storage racks prior to shipment. There are no emissions from this process.

J. Shipping

Finished goods are loaded onto trucks for distribution to the customer. There are no emissions from this process.

K. Photopolymer Plate Making

Printing plates are made from the three-dimensional structures made from a photosensitive polymer. This polymer is a special plastic that cross links (cures) when exposed to ultraviolet (UV) light. A typical unprocessed plate consists of transparent polyester back, a layer of photosensitive polymer, a transparent slip film covering the polymer and a protective sheet of translucent polyester. The unprocessed plate is covered with a photographic negative made from the artwork containing typography, halftones, line drawing, etc. The negative acts as a mask so that some areas are exposed to UV light (and cured) while other areas are not. The uncured areas are washed away and the 3-D printing image is left. There are seven steps in plate making, namely – Back Exposure, Face Exposure, Plate wash out, Rinsing, Drying, Finishing, and Post Exposure.

Emissions arise from the washer/dryer processor unit. This process is outside the PTE and the emissions are vented to the atmosphere.

L. Extrusion Laminating Process

Film from in-process storage is laminated to one or more backstock materials through an extrusion laminating process. Laminating is the combining of two or more materials. In many cases a single material does not have all the physical attributes necessary to protect the product being packaged. For such cases, two or more materials are combined together through lamination to give the package the necessary attributes. Extrusion laminating combines two sheets of film into a laminate by using hot extruded material as a bonding agent. Depending on the substrate, it is sometimes necessary to use an adhesion promoter (primer) on one of the substrate being laminated. Stack and fugitive emissions are generated through the application of water base and solvent base primers on the extruder laminator. The extruder laminator is not within the PTE. All the emissions are vented to the atmosphere.

M. Permanent Total Enclosure (PTE)

A PTE is "a permanently installed enclosure that completely surrounds a source of emissions such that all VOC emissions are captured and contained for discharge to a control device". The Press department, Ink Room, and Manual Parts Washer are inside the PTE. All emissions generated in these areas of operation are captured and routed to the catalytic oxidizer.

N. Catalytic Oxidizer

One 35,000 standard cubic feet per minute (SCFM) catalytic oxidizer is

operated to control volatile organic compound emissions from the PTE. The oxidizer has a volatile organic compound (VOC) destruction efficiency of over 95%.

III. EMISSION

Table 1 shows the facility-wide potential to emit for criteria pollutants.

Table 1: FACILITY-WIDE EMISSIONS* OF CRITERIA POLLUTANTS

Pollutant	Tons per Year
PM ₁₀	0.74
SO ₂	0.06
NO _x	9.69
CO	8.14
VOCs	< 90
HAPs	<9.00 for combination of HAPs

* Please refer to the application for detailed emission calculations

IV. COMPLIANCE HISTORY

Inspections are being regularly conducted at Printpack to ensure compliance with the permit conditions. Printpack is currently in compliance with the permit conditions cited in Permit No. 1000215 and the revisions to this permit.

V. APPLICABLE REGULATIONS

The Permittee has identified the applicable regulations that apply to each unit in its permit application. Table 2 summarizes the findings of the Department with respect to the regulations that apply to each emissions source. The previous permit conditions are discussed under Section VI of this technical review document.

Table 2: APPLICABLE REGULATIONS

Unit ID	Year of Manufacture	Control Equipment	Applicable Regulations	Verification
<p><i>Inside the Permanent Total Enclosure</i> Ink room Press #1 Press #2 Press #3 Automatic roll-in parts washer One manual parts washer</p> <p><i>Outside the Capture Enclosure Area</i> Extruder with one prime station Photopolymer plate making process</p>	1991	Catalytic Oxidizer	<p><u>A.A.C.</u> R18-2-702.B R18-2-730.A R18-2-730.B R18-2-730.D R18-2-730.F R18-2-730.G</p>	<p>There is no applicable NSPS for flexographic printing. The operation is subject to A.A.C R18-2-730 (Standards of Performance for Unclassified Sources).</p>
<p>Three bulk solvent storage tanks (10,000 gallons each)</p>	1990	Submerged fill	<p><u>A.A.C.</u> R18-2-730.D R18-2-730.F R18-2-730.G</p>	<p>There is no NSPS requirement for these solvent storage tanks. They are regulated under A.A.C. R18-2-730 (Standards of Performance for Unclassified Sources).</p>
<p>Catalytic oxidizer natural gas combustor, Press #1, #2, and #3 natural gas combustors, Extruder natural gas combustor</p>	1990	None	<p><u>A.A.C.</u> R18-2-730.A R18-2-730.B R18-2-730.D R18-2-730.F R18-2-730.G</p>	<p>These are direct fired combustors, and are therefore not subject to A.A.C R18-2-724. They are regulated under A.A.C. R18-2-730 (Standards of Performance for Unclassified Sources).</p>

Unit ID	Year of Manufacture	Control Equipment	Applicable Regulations	Verification
Fugitive dust sources: Open areas, roadways and streets, and material handling	N/A	Water and other reasonable precautions	<u>A.A.C.</u> R18-2-604.A R18-2-604.B R18-2-605 R18-2-606 R18-2-607 R18-2-614 R18-2-702.B	The regulations listed are applicable to fugitive dust sources.
Mobile Sources	N/A	None	<u>A.A.C.</u> R18-2-801 R18-2-804	These regulations are applicable to all mobile sources.
Other periodic activities (abrasive blasting, spray painting, renovation operations, air conditioner repairs)	N/A	Reasonable precautions	<u>A.A.C.</u> R18-2-726 R18-2-727 (spray painting operations) R18-2-702.B R18-2-1101.A.8 (NESHAPS for asbestos)	Relevant requirements applicable to the periodic activities.

VI. PREVIOUS PERMITS AND CONDITIONS

A. Previous Permits

Table 3 lists the previous permits that have been issued to Printpack.

Table 3: PREVIOUS PERMITS

Permit #	Issue Date	Application Basis
1000215	April 24, 2003	Title V Operating Permit
38721	September 18, 2006	Minor Permit Revision

B. PREVIOUS PERMIT CONDITIONS

1. Operating Permit #1000215

Condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Attachment A			x		This has been revised and most recent Attachment "A" is used for this permit.
Attachment B					
I		x			This condition for facility-wide requirements renumbered as Condition II.
II		x			This condition for "Within the Permanent Total Enclosure" renumbered as Condition III.
III		x			This condition for "Non Point Sources" renumbered as Condition IV and titled as Fugitive Dust Requirements.
IV		x			This condition for "Other Periodic Activity" renumbered as Condition V.

2. Minor Permit Revision #38721

Condition #	Determination				Comments
	Delete	Kept	Revise	Streamline	
Attachment B					
I		x			This condition for facility-wide requirements renumbered as Condition II.

VII. PERIODIC MONITORING

A. Operating Hours

The operating hours for each press is limited to 6,550 hours per year, based on a 12-month rolling total. The operating hours for each press is required to be monitored and recorded using the Computerized Information Management System (CIMS). A summary report of the operating hours will be prepared on a monthly basis for each press, and a record of the 12-month rolling total of hours of operation shall be maintained for each press.

B. Volatile Organic Compounds (VOCs) & Hazardous Air Pollutants (HAPs)

1. VOCs

The Permittee has voluntarily accepted to limit VOCs emitted from the facility to 90 tons per year, based on a 12-month rolling total. A mass balance equation is used to compute monthly VOC emissions. The total monthly emissions shall be added to the total monthly emissions from the previous consecutive 11 calendar months to establish the 12-month rolling total emissions for the facility.

2. HAPs

The Permittee has voluntarily accepted to limit all HAPs emitted from the facility to 9 tons per year. The Permittee will be required to monitor and keep records of its usage to ensure that the voluntarily accepted limitation is being met.

C. Opacity

The emission units are subject to a 20 percent opacity standard. The Permittee uses natural gas as fuel in the fuel burning equipment. A monthly survey of visible emissions emanating from the stack of each emission point shall be conducted. In case the opacity of the emissions observed appears to exceed the standard, a certified EPA Reference Method 9 observation shall be made.

D. Particulate Matter

The facility is subject to A.A.C. R18-2-730.A. It can be seen from the emission numbers in Table 1 that the emissions of PM₁₀ are very low. The emissions are expected to be significantly lower than the allowable that can be calculated from the process rate equation specified in A.A.C. R18-

2-730.A.1. Consequently, no monitoring is being specified.

E. SO₂

The facility is subject to A.A.C. R18-2-730.A.2. It can be seen from the emission numbers in Table 1 that the emissions of SO₂ are low relative to the allowable limit of 600 ppm. Consequently, no monitoring is being specified.

F. NO_x

The facility is subject to A.A.C. R18-2-730.A.3. It can be seen from the emission numbers in Table 1 that the emissions of NO_x are low relative to the allowable limit of 500 ppm. Consequently, no monitoring is being specified.

VIII. TESTING REQUIREMENTS

A. Catalytic Oxidizer

The Permittee is required to conduct two performance tests for VOC emissions from the stack of the oxidizer, the first test in the first year of permit term and second test in the fourth year of the permit term. The performance test will be conducted in accordance with EPA Reference Method 25A. Press production rate, catalyst bed temperatures (inlet/outlet), and the gas volumetric rate will be monitored and recorded during the test. The test will be used to demonstrate compliance with the 95 percent destruction efficiency limit for the catalytic oxidizer.

B. Permanent Total Enclosure

The Permittee is required to demonstrate that the PTE meets the 4-point criteria. The design verification must be performed annually and the results reported to ADEQ in accordance with the requirements listed in Attachment "A".

IX. APPLICABILITY OF NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP)

40 CFR Part 63 Subpart KK is applicable to the printing and publishing industry. This standard is applicable to major and area sources (sources that emit less than 10 tons per year of a single HAP and less than 25 tons per year of all HAPs). Printpack's Prescott Valley facility is an area source of HAPs. The company has voluntarily accepted permit conditions that limit emissions to less than 9 tons per year of all HAPs. Since 40 CFR 63.820(a)(2) allows a facility to establish area source status through a mechanism other than what is contained in Subpart KK,

Printpack is not subject to 40 CFR 63 Subpart KK. The Permittee is required to monitor and keep records of its HAP usage to ensure that the voluntary accepted limitation is met.

X. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
CFR	Cod of Federal Regulations
CIMS	Computerized Information Management System
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
EPA	Environmental Protection Agency
HAP	Hazardous Air Pollutant
hr	Hour
lb	Pound
NESHAP	National Emission Standards for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NO _x	Nitrogen Oxide
NOV	Notice of Violation
PM	Particulate Matter
PM ₁₀	Particulate Matter Nominally less than 10 Micrometers
PTE	Permanent Total Enclosure
SCFM	Standard Cubic Feet per minute
SO ₂	Sulfur Dioxide
TPY	Tons per Year
UV	Ultra Violet
VOC	Volatile Organic Compound