

**AIR CONSTRUCTION PERMIT
APPLICATION
CHARLOTTE PIPE AND FOUNDRY COMPANY
PLASTICS DIVISION
WILDWOOD, FLORIDA**

PREPARED FOR:

**CHARLOTTE PIPE AND FOUNDRY COMPANY
PLASTICS DIVISION
MONROE, NORTH CAROLINA**

PREPARED BY:

**AWARE ENVIRONMENTAL ® INC.
9305-J MONROE ROAD
CHARLOTTE, NORTH CAROLINA
AEI Job No. N188-79
AEI Document No. 18879r001**

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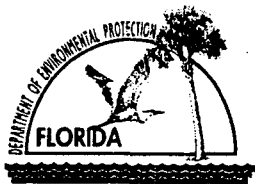
Attachment A.	Ink Jet Printing Process Emission Calculations and Emission Factor Selection
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SECTION 1.0 INTRODUCTION

Charlotte Pipe and Foundry Company, Plastics Division (CPFC) is requesting a Construction Permit for its Polyvinyl Chloride (PVC) and Chlorinated Polyvinyl Chloride (CPVC) pipe manufacturing facility. The facility is located in Wildwood, Florida (Figure 1) and currently operates under a Synthetic Minor Non-Title V Air Operating Permit (Permit No. 1190030-009-AO). The Construction Permit is being requested so the facility may increase its currently permitted VOC and total hazardous air pollutant (HAP) emission limits from 5.0 tons in any consecutive 12-month period to 15 tons in any consecutive 12-month period. The facility also wishes to establish a permit limit of 9.9 tons in any consecutive 12-month period for MEK.

The facility is considered a Synthetic Minor Non-Title V source of air emissions. The increase of its currently permitted VOC and total HAP emission limits to 15 tons in any consecutive 12-month period and the addition of a permit limit of 9.9 tons in any consecutive 12-month period for MEK will not change the facility's Synthetic Minor classification. If not subject to limitations, the facility would emit MEK, a HAP, total HAPs, and VOCs from its inkjet printing process above Title V thresholds if the facility's inkjet printers were running constantly at full capacity. The inkjet printers are not reasonably expected to run at full capacity and their potential emissions have been limited based on the facility's permitted production throughput rate. The ink and additive use associated with the inkjet printing process is directly related to pipe production.

SECTION 2.0
APPLICATION FOR AIR PERMIT – LONG FORM



Department of Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - NON-TITLE V SOURCE

See Instructions for Form No. 62-210.900(3)

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: Charlotte Pipe and Foundry Company	
2. Site Name: Charlotte Pipe and Foundry Company- Plastics Division, Wildwood, Florida	
3. Facility Identification Number: 1190030 [] Unknown	
4. Facility Location: Street Address or Other Locator: County Road 124 A City: Wildwood County: Sumter Zip Code: 34785	
5. Relocatable Facility? [] Yes [X] No	6. Existing Permitted Facility? [X] Yes [] No

Application Contact

1. Name and Title of Application Contact: James Neubauer, Scientist	
2. Application Contact Mailing Address: Organization/Firm: AWARE Environmental ® Inc. Street Address: 9305 Monroe Road Suite J City: Charlotte State: NC Zip Code: 28270	
3. Application Contact Telephone Numbers: Telephone: (704) 815-1686 Fax: (704) 845-1759	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	
2. Permit Number:	

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

- ☐ Initial non-Title V air operation permit for one or more existing, but previously unpermitted, emissions units.
- ☐ Initial non-Title V air operation permit for one or more newly constructed or modified emissions units.

Current construction permit number: _____

- ☐ Non-Title V air operation permit revision to address one or more newly constructed or modified emissions units.

Current construction permit number: _____

Operation permit number to be revised: _____

- ☐ Initial non-Title V air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s): _____

- ☐ Non-Title V air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g., to address one or more newly constructed or modified emissions units.

Operation permit number to be revised: _____

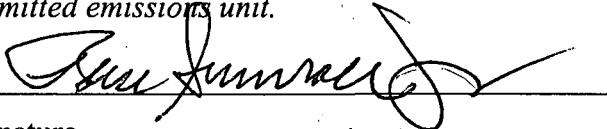
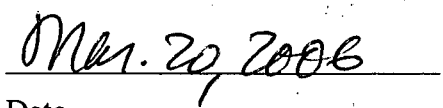
Reason for revision: _____

Air Construction Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

- ☒ Air construction permit to construct or modify one or more emissions units.
- ☐ Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.
- ☐ Air construction permit for one or more existing, but unpermitted, emissions units.

Owner/Authorized Representative

1. Name and Title of Owner/Authorized Representative: Reese Sumrall, Jr.
2. Owner/Authorized Representative Mailing Address: Organization/Firm: Charlotte Pipe and Foundry Company- Plastics Division Street Address: 4210 Old Charlotte Highway City: Monroe State: NC Zip Code: 28110
3. Owner/Authorized Representative Telephone Numbers: Telephone: (704) 291-3211 Fax: (704) 291-3204
4. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative* of the facility addressed in this application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.</i> <div style="display: flex; justify-content: space-between;"><div style="text-align: center;"> Signature</div><div style="text-align: center;"> Date</div></div>

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: Edward C. Fiss, Jr. Registration Number: 40330
2. Professional Engineer Mailing Address: Organization/Firm: AWARE Environmental ® Inc. Street Address: 9305 Monroe Road Suite J City: Charlotte State: NC Zip Code: 28270
3. Professional Engineer Telephone Numbers: Telephone: (704) 845-1697 Fax: (704) 845-1759

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

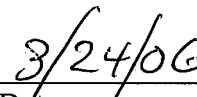
(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.


Signature


Date

(seal)

* Attach any exception to certification statement.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
009	Ink Jet Printing	AC1E	\$250
			(Pro-Rated Amount)

Application Processing Fee

Check one: [X] Attached - Amount: \$250 [] Not Applicable

Construction/Modification Information

1. Description of Proposed Project or Alterations:

Charlotte Pipe and Foundry Company – Plastics Division (CPFC) is requesting a construction permit for its PVC and CPVC pipe manufacturing facility. The construction permit is being requested so the facility may increase its currently permitted VOC and Total HAPs emission limits from 5.0 tons in any consecutive 12-month period to 15 tons in any consecutive 12-month period. The facility also wishes to establish a permit limit of 9.9 tons in any consecutive 12-month period for MEK.

2. Projected or Actual Date of Commencement of Construction: Currently constructed

3. Projected Date of Completion of Construction: Currently constructed

Application Comment

All facility equipment is currently constructed. This permit application is not being submitted to receive a construction permit for the addition of new equipment, but is instead being submitted to increase currently permitted VOC and Total HAPs emission limits for the facility and establish a MEK emission limit for the facility.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone: 17 East (km): 399.0 North (km): 3,197			
2. Facility Latitude/Longitude: Latitude (DD/MM/SS): 28/53/45 Longitude (DD/MM/SS): 82/02/00			
3. Governmental Facility Code: O	4. Facility Status Code: A	5. Facility Major Group SIC Code: 30	6. Facility SIC(s): 3084
7. Facility Comment (limit to 500 characters): This facility is located at County Road 124A Wildwood, Florida, 34785. This facility is a PVC/CPVC pipe extrusion facility.			

Facility Contact

1. Name and Title of Facility Contact: Reese Sumrall, Jr.		
2. Facility Contact Mailing Address: Organization/Firm: Charlotte Pipe and Foundry Company- Plastics Division Street Address: 4210 Old Charlotte Highway City: Monroe State: NC Zip Code: 28110		
3. Facility Contact Telephone Numbers: Telephone: (704) 291-3211 Fax: (704) 291-3204		

Facility Regulatory Classifications

Check all that apply:

1. <input type="checkbox"/> Small Business Stationary Source?	<input type="checkbox"/> Unknown
2. <input checked="" type="checkbox"/> Synthetic Non-Title V Source?	
3. <input checked="" type="checkbox"/> Synthetic Minor Source of Pollutants Other than HAPs?	
4. <input checked="" type="checkbox"/> Synthetic Minor Source of HAPs?	
5. <input type="checkbox"/> One or More Emissions Units Subject to NSPS?	
6. <input type="checkbox"/> One or More Emission Units Subject to NESHAP Recordkeeping or Reporting?	
7. Facility Regulatory Classifications Comment (limit to 200 characters): The facility is currently classified as a Synthetic Minor Non-Title V Source of volatile organic compounds (VOC) and hazardous air pollutants (HAPs) emissions, as defined by Rule 62-210.200, F.A.C. This application is being submitted so the facility may increase its currently permitted VOC and Total HAPs emission limits from 5.0 tons in any consecutive 12-month period to 15 tons in any consecutive 12-month period. The facility also wishes to establish a permit limit of 9.9 tons in any consecutive 12-month period for MEK.	

Rule Applicability Analysis

62-4.50	Procedures to obtain permits and other applications
62-212.100	Purpose and Scope
62-212.300	General Preconstruction requirements
62-296.100,200,300	Stationary Source Emissions Standards

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. <u>Requested Emissions Cap</u>		4. Basis for Emissions Cap	5. Pollutant Comment
		lb/hour	tons/year		
PM	B	17.2	4.5	Rule and Other	Requested hourly emission cap is based on Rule 62-296.320 and the pneumatic conveyor's max rate of 12.5 tons/hr (PVC raw material). The annual emissions will be below five (5) tons per year. The facility annual potential emissions is approximately 1.174 tons/yr
VOCs	SM	3.42	15.0	ESCTV	The annual emission cap is being requested so the facility's annual VOC emissions will be below the TitleV threshold value of 100 tons/yr.
MEK	SM	2.26	9.9	ESCTIII	The annual emission cap is being requested so the facility's annual MEK emissions will be below the Title V threshold value of 10 tons/yr.
TOTAL HAPS	SM	3.42	15.0	ESCTIII	The annual emission cap is being requested so the facility's annual total HAPs emissions will be below the TitleV threshold value of 25 tons/yr.

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location: [X] Attached, Document ID: <u>Figure #1</u> [] Not Applicable [] Waiver Requested
2. Facility Plot Plan: [] Attached, Document ID: _____ [X] Not Applicable [] Waiver Requested
3. Process Flow Diagram(s): [X] Attached, Document ID: <u>Figure#2, #3</u> [] Not Applicable [] Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: [] Attached, Document ID: _____ [X] Not Applicable [] Waiver Requested
5. Supplemental Information for Construction Permit Application: [] Attached, Document ID: _____ [X] Not Applicable
6. Supplemental Requirements Comment: Not applicable to this facility

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through G as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION**Emissions Unit Description and Status**

1. Type of Emissions Unit Addressed in This Section: (Check one)		
<input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).		
<input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.		
<input checked="" type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.		
2. Description of Emissions Unit Addressed in This Section (limit to 60 characters): Ink Jet Printing		
3. Emissions Unit Identification Number: <input type="checkbox"/> No ID <input type="checkbox"/> ID Unknown ID: 009		
4. Emissions Unit Status Code: A	5. Initial Startup Date: 10/99	6. Emissions Unit Major Group SIC Code: 30
7. Emissions Unit Comment: (Limit to 500 Characters) The facility's ink jet printing process consists of printing bar codes and specification information on manufactured PVC and CPVC pipe. The facility's ink jet printing process utilizes twelve (12) Image-Model JAIME 100S8 and eleven (11) Video Jet-Model EXCEL 1701 ink jet printers. Air emissions from this emission unit include MEK, Methanol, and Isophorone, as well as VOCs		

Emissions Unit Control Equipment

1. Control Equipment/Method Description (limit to 200 characters per device or method):

NA

2. Control Device or Method Code(s): NA

Emissions Unit Details

1. Package Unit: NA

Manufacturer:

Model Number:

2. Generator Nameplate Rating: NA

MW

3. Incinerator Information: NA

Dwell Temperature:

°F

Dwell Time:

seconds

Incinerator Afterburner Temperature:

°F

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate: NA mmBtu/hr

2. Maximum Incineration Rate: NA lb/hr tons/day

3. Maximum Process or Throughput Rate: Please See Attachment A

4. Maximum Production Rate: NA

5. Requested Maximum Operating Schedule:

24 hours/day

7 days/week

52 weeks/year

8760 hours/year

6. Operating Capacity/Schedule Comment (limit to 200 characters):

The maximum process rate is the total potential purchases of each individual ink and additive used in the inkjet printing process. Please see Attachment A for an explanation of how the potential purchases were determined.

B. EMISSION POINT (STACK/VENT) INFORMATION**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram? F-01		2. Emission Point Type Code: 4	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): This emission unit produces fugitive emissions inside a facility building.			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: NA			
5. Discharge Type Code: F	6. Stack Height: See attached Table #1	7. Exit Diameter: See attached Table #1	
8. Exit Temperature: See attached Table #1	9. Actual Volumetric Flow Rate: See attached Table #1	10. Water Vapor: NA	
11. Maximum Dry Standard Flow Rate: NA dscfm		12. Nonstack Emission Point Height: See attached Table #1	
13. Emission Point UTM Coordinates: Not Available Zone: East (km): North (km):			
14. Emission Point Comment (limit to 200 characters): This emission unit produces fugitive emissions that include MEK, Methanol and Isophorone, as well as VOCs. Please see attached Figure #2- Process Schematic Diagram (PVC) and the attached Figure #3- Process Schematic Diagram (CPVC)			

C. SEGMENT (PROCESS/FUEL) INFORMATION**Segment Description and Rate:** Segment 0 of 0

1. Segment Description (Process/Fuel Type) (limit to 500 characters): NA		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters): 		

Segment Description and Rate: Segment 0 of 0

1. Segment Description (Process/Fuel Type) (limit to 500 characters): NA		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters): 		

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**Potential Emissions**

1. Pollutant Emitted: VOCs		2. Pollutant Regulatory Code: EL	
3. Primary Control Device Code: NA	4. Secondary Control Device Code: NA	5. Total Percent Efficiency of Control: NA	
6. Potential Emissions: 3.42 lb/hour 15.0 tons/year		7. Synthetically Limited? [X]	
8. Emission Factor: See Attachment A Reference:		9. Emissions Method Code: 2	
10. Calculation of Emissions (limit to 600 characters) See Attachment A			
11. Pollutant Potential Emissions Comment (limit to 200 characters): The potential emissions listed in Item #6 represent the same values as the equivalent allowable emissions listed below.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: ESCTV	2. Future Effective Date of Allowable Emissions: NA
3. Requested Allowable Emissions and Units: See Field 4	4. Equivalent Allowable Emissions: NA 3.42 lb/hour 15.0 tons/year
5. Method of Compliance (limit to 60 characters): Ink and additive usage (qts or L) and VOC content (lb/qt or lb/L)	
6. Allowable Emissions Comment (limit to 200 characters): The equivalent allowable emissions are requested so that annual VOC emissions will be below the one hundred (100) tons per year Title V threshold.	

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**Potential Emissions**

1. Pollutant Emitted: MEK		2. Pollutant Regulatory Code: EL
3. Primary Control Device Code: NA	4. Secondary Control Device Code: NA	5. Total Percent Efficiency of Control: NA
6. Potential Emissions: 2.26 lb/hour 9.9 tons/year		7. Synthetically Limited? [X]
8. Emission Factor: See Attachment A Reference:		9. Emissions Method Code: 2
10. Calculation of Emissions (limit to 600 characters): See Attachment A		
11. Pollutant Potential Emissions Comment (limit to 200 characters): The potential emissions listed in Item #6 represent the same value as the equivalent allowable emissions listed below.		

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: ESCTIII	2. Future Effective Date of Allowable Emissions: NA
3. Requested Allowable Emissions and Units: See Field 4	4. Equivalent Allowable Emissions: 2.26 lb/hour 9.9 tons/year
5. Method of Compliance (limit to 60 characters): Ink and additive usage (qts or L) and MEK content (lb/qt or lb/L).	
6. Allowable Emissions Comment (limit to 200 characters): The equivalent allowable emissions are requested so that annual MEK emissions will be below the ten (10) tons per year Title V threshold.	

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**Potential Emissions**

1. Pollutant Emitted: Total HAPs		2. Pollutant Regulatory Code: EL
3. Primary Control Device Code: NA	4. Secondary Control Device Code: NA	5. Total Percent Efficiency of Control: NA
6. Potential Emissions: 3.42 lb/hour 15.0 tons/year		7. Synthetically Limited? [X]
8. Emission Factor: See Attachment A Reference:		9. Emissions Method Code: 2
10. Calculation of Emissions (limit to 600 characters): See Attachment A		
11. Pollutant Potential Emissions Comment (limit to 200 characters): The potential emissions listed in Item #6 represent the same value as the equivalent allowable emissions listed below.		

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: ESCTIII	2. Future Effective Date of Allowable Emissions: NA
3. Requested Allowable Emissions and Units: See Field 4	4. Equivalent Allowable Emissions: 3.42 lb/hour 15.0 tons/year
5. Method of Compliance (limit to 60 characters): Ink and additive usage (qts or L) and Total HAPs content (lb/qt or lb/L).	
6. Allowable Emissions Comment (limit to 200 characters) The equivalent allowable emissions are requested so that annual total HAPs emissions will be below the twenty-five (25) tons per year Title V threshold.	

E. VISIBLE EMISSIONS INFORMATION
(Only Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation 0 of 0

1. Visible Emissions Subtype: NA	2. Basis for Allowable Opacity: NA [] Rule [] Other
3. Requested Allowable Opacity: NA Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: NA	
5. Visible Emissions Comment (limit to 200 characters): This emission unit produces fugitive emissions and vents inside a facility building and is therefore exempt from visible emissions compliance testing. The emission unit is however, subject to general visible emissions requirements.	

F. CONTINUOUS MONITOR INFORMATION
(Only Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor 0 of 0

1. Parameter Code: NA	2. Pollutant(s): NA
3. CMS Requirement: NA	[] Rule [] Other
4. Monitor Information: NA Manufacturer: Model Number: Serial Number:	
5. Installation Date: NA	6. Performance Specification Test Date: NA
7. Continuous Monitor Comment (limit to 200 characters): NA	

G. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Process Flow Diagram [X] Attached, Document ID: <u>Figure #2 and #3</u> [] Not Applicable [] Waiver Requested
2. Fuel Analysis or Specification [] Attached, Document ID: _____ [X] Not Applicable [] Waiver Requested
3. Detailed Description of Control Equipment [] Attached, Document ID: _____ [X] Not Applicable [] Waiver Requested
4. Description of Stack Sampling Facilities [] Attached, Document ID: _____ [X] Not Applicable [] Waiver Requested
5. Compliance Test Report [] Attached, Document ID: _____ [] Previously submitted, Date: _____ [X] Not Applicable
6. Procedures for Startup and Shutdown [] Attached, Document ID: _____ [X] Not Applicable [] Waiver Requested
7. Operation and Maintenance Plan [] Attached, Document ID: _____ [X] Not Applicable [] Waiver Requested
8. Supplemental Information for Construction Permit Application [] Attached, Document ID: _____ [X] Not Applicable
9. Other Information Required by Rule or Statute [] Attached, Document ID: _____ [X] Not Applicable
10. Supplemental Requirements Comment: NA

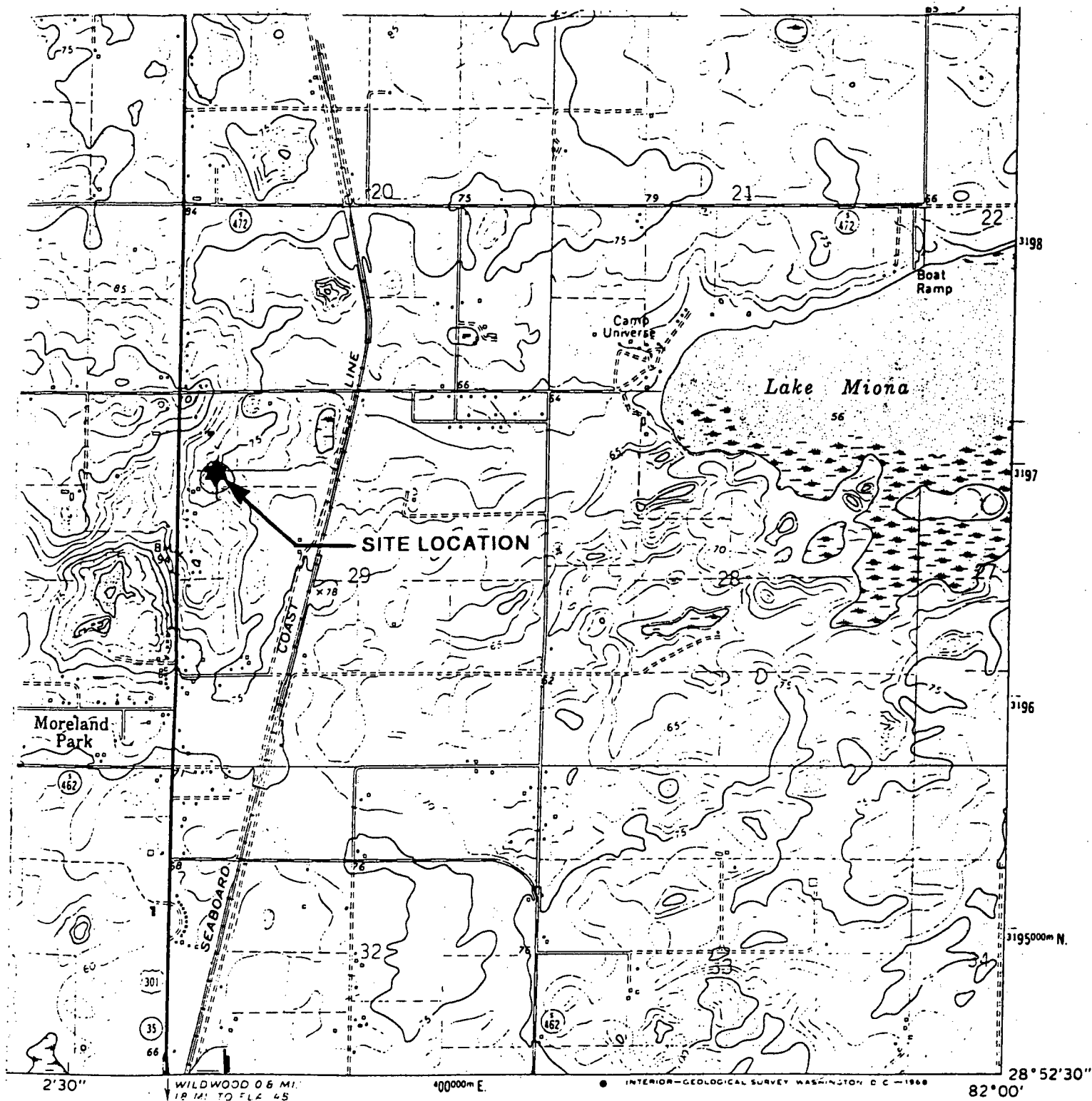
TABLES

TABLE 1
FACILITY EQUIPMENT INFORMATION

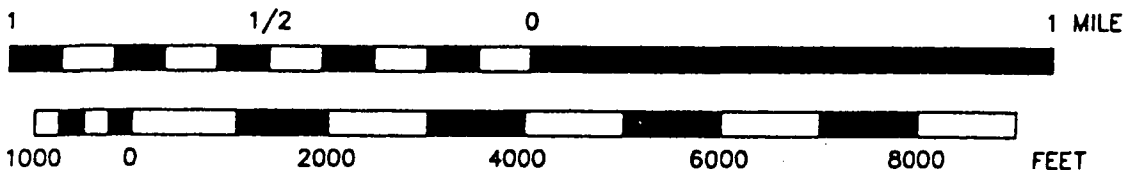
Emission Source Information					Control Device Information				Emission Point Information					
Emission Unit ID #	Emission Source ID #	Emission Source Description	Source Manufacturer	Source Capacity	Emission Point ID #	Control Device	Control Device Manufacturer	Minimum Control (%)	Filter Cloth Area	Exhaust Height	Exhaust Diameter	Exhaust Temp.	Volumetric Flow Rate	Exhaust Direction
001	ES-01	PVC Railcar Unloading	O.A Newton	417 lbs/min	EP-01	Cartridge Filter	O.A. Newton	99	360 sq. Ft.	Ground Level	6 inches	Ambient	900 CFM	H
002	ES-02	PVC Storage Silo 2	Peabody-TecTank	4925 cu. Ft.	EP-02	Bin Vent (Cartridge)	O.A. Newton	99	270 sq. Ft.	64 ft.	1.93 sq. Ft.	Ambient	700 CFM	D
002	ES-03	PVC Storage Silo 3	Peabody-TecTank	4925 cu. Ft.	EP-03	Bin Vent (Cartridge)	O.A. Newton	99	270 sq. Ft.	64 ft.	1.93 sq. Ft.	Ambient	700 CFM	D
002	ES-04	PVC Storage Silo 4	Peabody-TecTank	4925 cu. Ft.	EP-04	Bin Vent (Cartridge)	O.A. Newton	99	270 sq. Ft.	64 ft.	1.93 sq. Ft.	Ambient	700 CFM	D
002	ES-05	PVC Storage Silo 5	Peabody-TecTank	4925 cu. Ft.	EP-05	Bin Vent (Cartridge)	O.A. Newton	99	270 sq. Ft.	64 ft.	1.93 sq. Ft.	Ambient	700 CFM	D
002	ES-06	PVC Storage Silo 6	Peabody-TecTank	4925 cu. Ft.	EP-06	Bin Vent (Cartridge)	O.A. Newton	99	270 sq. Ft.	64 ft.	1.93 sq. Ft.	Ambient	700 CFM	D
002	ES-07	PVC Resin Silo Silo 7	Peabody-TecTank	4925 cu. Ft.	EP-07	Bin Vent (Cartridge)	O.A. Newton	99	560 sq. Ft.	64 ft.	1.93 sq. Ft.	Ambient	700 CFM	D
004	ES-16	Extruder Hopper Receiver 1A	Universal Dynamics	23 cu. Ft.	EP-10	Bagfilter	Universal Dynamics	99	44.4 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
004	ES-17	Extruder Hopper Receiver 1B	Universal Dynamics	27 cu. Ft.	EP-10	Bagfilter	Universal Dynamics	99	44.4 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
004	ES-18	Extruder Hopper Receiver 2A	O.A Newton	27 cu. Ft.	EP-11	Cartridge Filter	O.A. Newton	99	135 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
004	ES-19	Extruder Hopper Receiver 2B	O.A Newton	27 cu. Ft.	EP-11	Cartridge Filter	O.A. Newton	99	135 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
004	ES-20	Extruder Hopper Receiver 3A	O.A Newton	27 cu. Ft.	EP-12	Cartridge Filter	O.A. Newton	99	135 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
004	ES-21	Extruder Hopper Receiver 3B	O.A Newton	27 cu. Ft.	EP-12	Cartridge Filter	O.A. Newton	99	135 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
004	ES-22	Extruder Hopper Receiver 4	O.A Newton	27 cu. Ft.	EP-13	Cartridge Filter	O.A. Newton	99	135 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
004	ES-23	Extruder Hopper Receiver 5	O.A Newton	27 cu. Ft.	EP-14	Cartridge Filter	O.A. Newton	99	135 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
004	ES-24	Extruder Hopper Receiver 6	O.A Newton	27 cu. Ft.	EP-15	Cartridge Filter	O.A. Newton	99	135 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
004	ES-35	Extruder Hopper Receiver 7	Universal Dynamics	27 cu. Ft.	EP-23	Bagfilter	Universal Dynamics	99	44.4 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
005	ES-25	Scrap Grinder Receiver	Rapid Granulator	1500 lbs/hr	EP-16	Bagfilter	Rapid Granulator	99	97.5 sq. Ft.	6.8 ft	NA	Ambient	2000 CFM	H
005	ES-26	Pulverizer Receiver	O.A Newton	2 cu. Ft.	EP-17	Cartridge Filter	O.A. Newton	99	112.5 sq. Ft.	Ground Level	4 inches	Ambient	250 CFM	H
005	ES-27	Pulverized Material Hopper Receiver	New Herbold	80.5 cu. Ft.	EP-18	Baghouse Filter	Torit	99	483 sq. Ft.	16.5 ft	16 inches	Ambient	1550 CFM	V
005	ES-28	Day Bin 1	O.A Newton	120 cu Ft.	EP-17	Cartridge Filter	O.A. Newton	99	112.5 sq. Ft.	Ground Level	4 inches	Ambient	250 CFM	H
005	ES-29	Day Bin 2	O.A Newton	120 cu Ft.	EP-19	Cartridge Filter	O.A. Newton	99	112.5 sq. Ft.	Ground Level	4 inches	Ambient	250 CFM	H
005	ES-30	Day Bin 3	O.A Newton	120 cu Ft.	EP-20	Cartridge Filter	O.A. Newton	99	112.5 sq. Ft.	Ground Level	4 inches	Ambient	250 CFM	H
005	ES-31	Blender 1 Virgin Receiver	O.A Newton	5 cu. Ft	EP-21	Cartridge Filter	O.A. Newton	99	135 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
005	ES-32	Blender 1 Pulverized Receiver	O.A Newton	5 cu. Ft	EP-21	Cartridge Filter	O.A. Newton	99	135 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
005	ES-33	Blender 2 Virgin Receiver	O.A Newton	5 cu. Ft	EP-22	Cartridge Filter	O.A. Newton	99	135 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
005	ES-34	Blender 2 Pulverized Receiver	O.A Newton	5 cu. Ft	EP-22	Cartridge Filter	O.A. Newton	99	135 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
005	ES-38	CPVC Scrap Grinder Receiver	Rapid Granulator	500 lbs/hr	EP-26	Polyester Filter	Novatec	99	240.5 sq. Ft.	7 ft	NA	Ambient	650 CFM	V
006	ES-08	Compounder Resin Scale Hopper	O.A Newton	40 cu. Ft.	EP-08	Cartridge Filter	O.A. Newton	99	1781 sq. Ft.	7.5 ft	3.18 sq. ft.	Ambient	11,000 CFM	D
006	ES-09	Compounder Microingredient Receiver	O.A Newton	13 cu. Ft.	EP-09	Cartridge Filter	O.A. Newton	99	157.5 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
006	ES-10	Compounder CaCO3 Receiver	O.A Newton	13 cu. Ft.	EP-09	Cartridge Filter	O.A. Newton	99	157.5 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
006	ES-11	Microingredient Units (7 units)	O.A Newton	2450 lbs.	EP-08	Cartridge Filter	O.A. Newton	99	1781 sq. Ft.	7.5 ft	3.18 sq. ft.	Ambient	11,000 CFM	L
006	ES-12	Compounder Hot Mixer	O.A Newton	32 cu. Ft	EP-08	Cartridge Filter	O.A. Newton	99	1781 sq. Ft.	7.5 ft	3.18 sq. ft.	Ambient	11,000 CFM	D
006	ES-13	Double Batch Hopper	O.A Newton	40 cu. Ft.	EP-08	Cartridge Filter	O.A. Newton	99	1781 sq. Ft.	7.5 ft	3.18 sq. ft.	Ambient	11,000 CFM	D
006	ES-14	Compounder Cooler	O.A Newton	90 cu. Ft	EP-08	Cartridge Filter	O.A. Newton	99	1781 sq. Ft.	7.5 ft	3.18 sq. ft.	Ambient	11,000 CFM	D
006	ES-15	Takeaway Hopper	O.A Newton	3000 lbs.	EP-08	Cartridge Filter	O.A. Newton	99	1781 sq. Ft.	7.5 ft	3.18 sq. ft.	Ambient	11,000 CFM	D
007	ES-36	CPVC Compound Storage Silo 1	Columbian-TecTank	4,590 cu. Ft.	EP-24	Cartridge Filter	Ultra	99	174 sq. Ft.	56 ft	6 inches	Ambient	600 CFM	D
008	ES-37	CPVC Extruder Hopper Receiver 8	Universal Dynamics	23 cu. Ft.	EP-25	Bagfilter	Universal Dynamics	99	44.4 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
008	ES-39	CPVC Extruder Hopper Receiver 9	Walter Stout	20 cu. Ft.	EP-27	Bagfilter	Walter Stout	99	75 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H
009	F-01	Inkjet Printers	Image/Video Jet	NA	F-01	Uncontrolled	NA	NA	NA	4 ft	Fugitive	Ambient	NA	Fugitive

**NA = Not Applicable

FIGURES



SCALE: 1:24000



CHARLOTTE PIPE & FOUNDRY
WILDWOOD, FLORIDA

REFERENCE:
BASE MAP TAKEN FROM USGS QUADRANGLE MAP:
OXFORD FLORIDA DATED 1966

FIGURE-1
SITE LOCATION MAP

AWARE ENVIRONMENTAL INC
AEI PROJECT NO. N188-79



Figure 2 - Process Schematic Diagram (PVC)

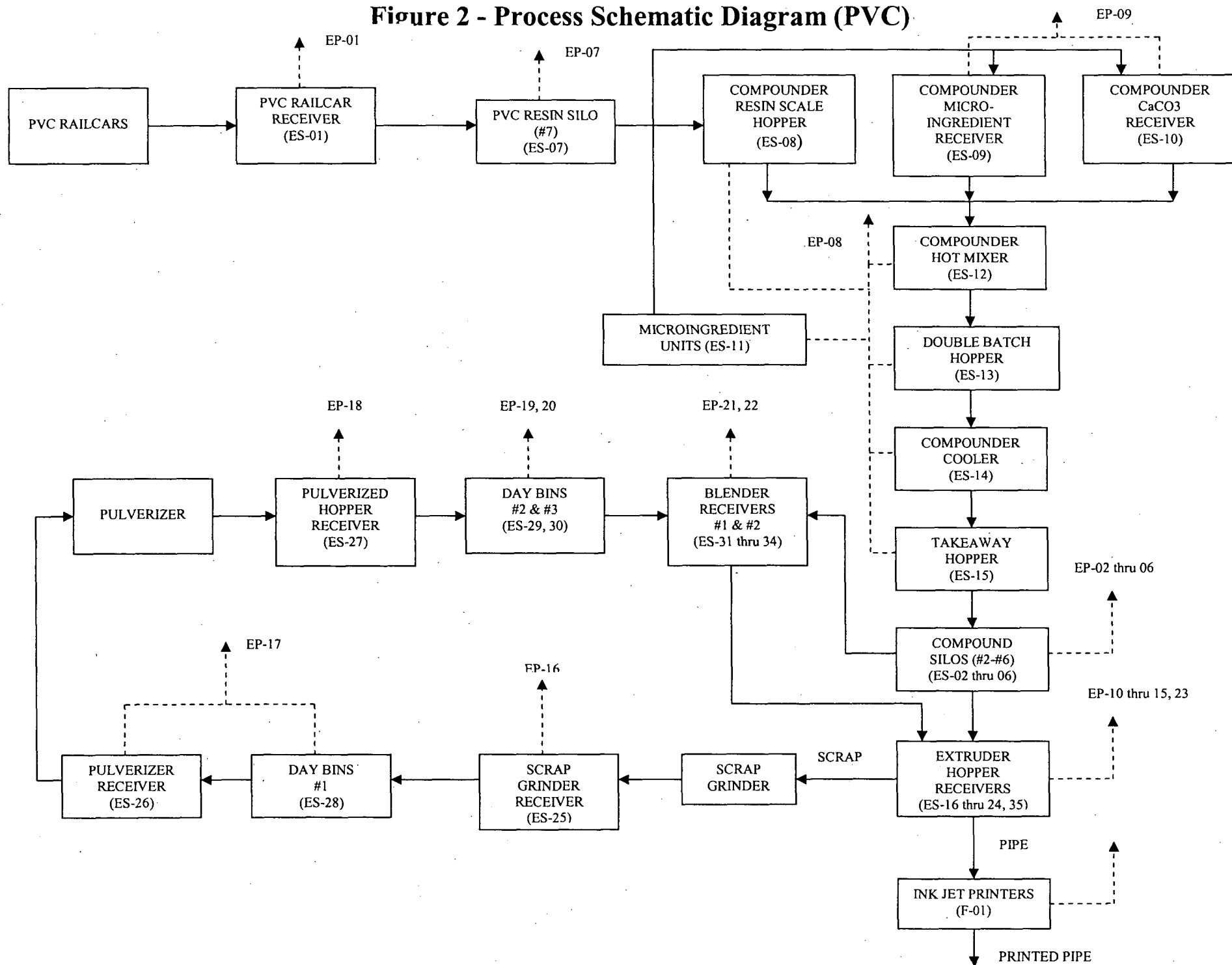
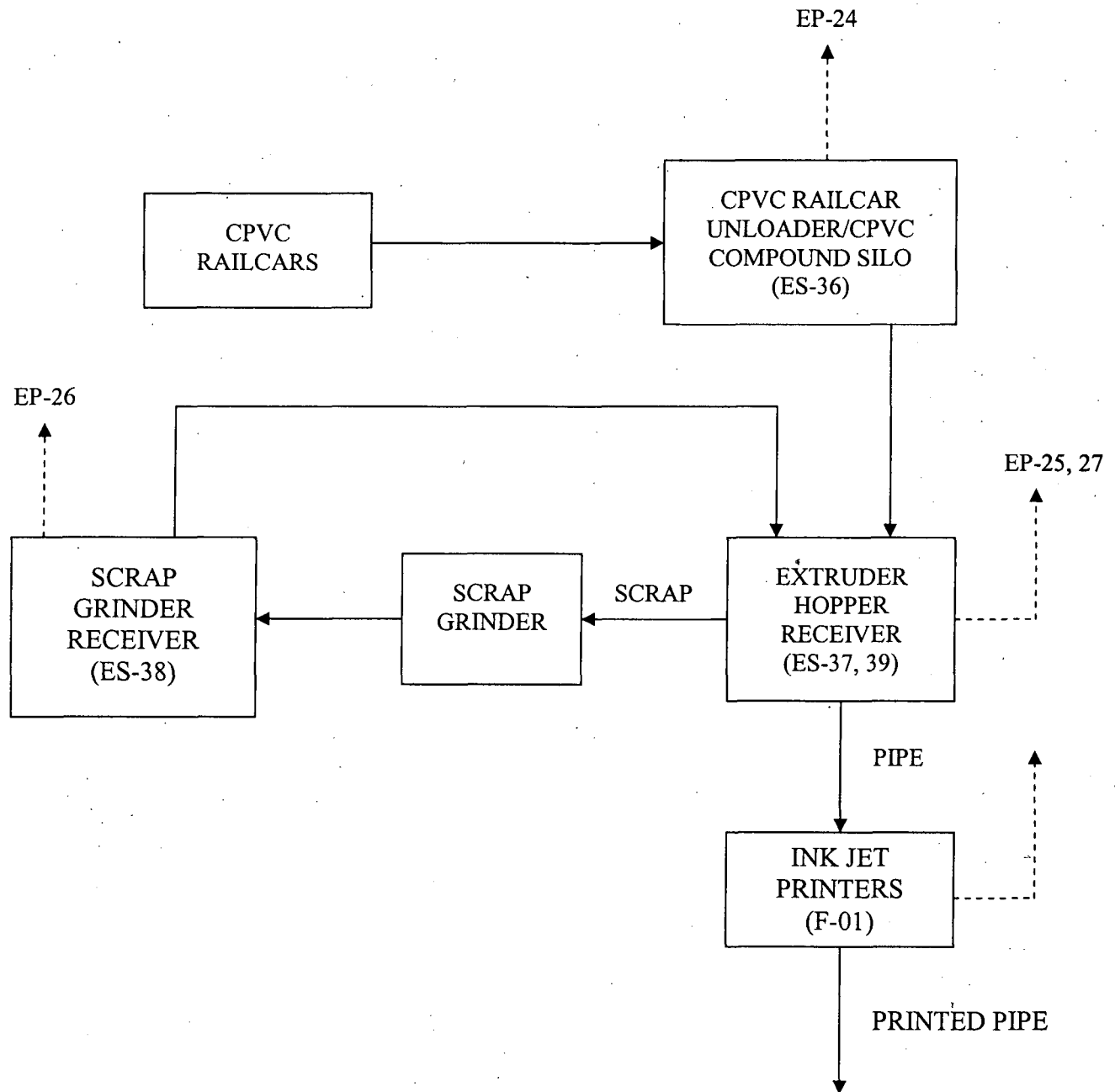


Figure 3 - Process Schematic Diagram (CPVC)



ATTACHMENT A
INK JET PRINTING PROCESS EMISSION CALCULATIONS AND EMISSION
FACTOR SELECTION

ATTACHMENT A
INK JET PRINTING PROCESS
EMISSION CALCULATIONS AND EMISSION FACTOR SELECTION

Charlotte Pipe & Foundry Company
Wildwood, Florida

CPFC's ink jet printing process consists of printing bar codes and specification information on PVC and CPVC pipe. The products used in the ink jet printing process contain HAPs in the form of Methyl Ethyl Ketone (MEK), Methanol, and Isophorone as well as VOCs.

Table A-1 summarizes the potential HAP/VOC emissions from the ink jet printing process. In determining the potential emissions of MEK, Methanol, Isophorone, and VOCs from CPFC's ink jet printing process, estimated potential ink and additive purchases as well as the calculated product MEK, Methanol, Isophorone, and VOC contents were used. Taking a conservative approach, the maximum possible MEK, Methanol, and Isophorone contents, taken from the product's MSDS chemical content range, were used to determine the worst case air emissions of the individual HAPs. The VOC content used is the actual content provided by the product's MSDS or vendor and in some cases is less than the determined total maximum HAPs content. In the cases when the provided VOC content was less than the determined total maximum HAPs contents, adjusted VOC emissions were calculated to represent the sum of MEK, Methanol, and Isophorone emissions from each ink and additive. Calculations determining the maximum HAPs and actual VOC contents of each product can be found in tables A-2 through A-7. A copy of each product's MSDS can be found in Attachment B of this application.

Potential ink and additive usages for the facility were determined using the 2005 annual ink and additive purchases from CPFC. A ratio was determined using CPFC's 2005 ink and additive purchases and its total 2005 production of PVC pipe (57,619,632 lbs. corresponding to 104,756,330 ft.) and CPVC pipe (3,698,854 lbs. corresponding to 34,899,250 ft.). The ratio was then used to determine CPFC's potential ink and additive usage based on its permitted production rate of 140,000,000 pounds per year (PVC=120,000,000 lbs. or approximately 218,167,995 ft. and CPVC=20,000,000 lbs. or approximately 188,703,042 ft.).

Ink and additive use is directly related to the total length of pipe produced. In 2005, the total length of PVC and CPVC pipe produced was 139,655,580 feet. Based on the ratio of weight of pipe produced to length of pipe produced in 2005, CPFC's permitted production rate of 140,000,000 pounds per year will likely yield approximately 406,871,037 feet of PVC and CPVC pipe. Therefore, 2005 ink and additive usages were multiplied by 2.9134 (ratio of estimated total feet of pipe produced from permitted production rate to total feet of pipe produced in 2005) to estimate the facility's potential ink and additive purchases.

Depending on the diameter of the PVC and CPVC pipe produced by the facility, the ratio of weight of pipe produced to length of pipe produced may vary. This would directly affect the amount of ink and additive used in the facility's inkjet printing process since ink and additive use is directly related to the total length of pipe produced. For example, higher diameter pipes would result in higher weights and shorter lengths of pipe produced, thus requiring the facility to use less ink and additive for inkjet printing than lower diameter pipes that would result in lower weights and higher lengths of pipe produced. Emissions in this application were calculated based on typical weights and lengths of pipe produced by the facility in 2005 and may be an overestimate, depending on the diameters of pipe produced at the facility in any given year.

The above method was a reasonable method of determining the potential emissions from the facility's ink jet printing process; however, the above method did not calculate the potential emissions based on each printer running constantly at full capacity. The ink jet printers are not reasonably expected to run at full capacity so their potential emissions have been limited based on the permitted production throughput rate. CPFC has estimated that if the printers were to run at full capacity, they would use approximately 10 times the amount of ink and additive of the previously calculated limited potential emissions. This factor was then adjusted to 10.11 since the limited potential emissions were calculated based on the printers only running for 8,664 of the potential 8,760 hours per year. As shown in Table A-1, by limiting their ink and additive usage based on the permitted production throughput, CPFC is avoiding Title V status because the estimated maximum potential MEK, (a HAP), and total HAPs emissions are above the Title V threshold values.

It is assumed that 100% of all the HAPs and VOCs contained in the products used in the ink jet printing process are emitted to the atmosphere.

TABLE A-1
POTENTIAL HAPS/VOC EMISSIONS
INK JET PRINTING PROCESS
Charlotte Pipe & Foundry Company - Plastics Division
Wildwood, Florida

Product	2005 Product Usage (qt/yr) or (l/yr)		Potential ¹ Product Usage (qt/yr) or (l/yr)		MEK			Methanol			Isophorone		
					Product ² Content (lb/qt) or (lb/l)	Limited ³ Potential Emissions (lbs/yr)	Maximum ⁵ Potential Emissions (lbs/yr)	Product ² Content (lb/qt) or (lb/l)	Limited ³ Potential Emissions (lbs/yr)	Maximum ⁵ Potential Emissions (lbs/yr)	Product ² Content (lb/qt) or (lb/l)	Limited ³ Potential Emissions (lbs/yr)	Maximum ⁵ Potential Emissions (lbs/yr)
Ink Jet T-17Q Red	216	qt/yr	629.29	qt/yr	1.8131 lb/qt	1,140.97	11,535.24	0.0907 lb/qt	57.08	577.05	0.0000 lb/qt	0.00	0.00
Ink Jet 175 I Clear (make-up)	495	qt/yr	1,442.13	qt/yr	1.6733 lb/qt	2,413.12	24,396.65	0.5020 lb/qt	723.95	7,319.14	0.0000 lb/qt	0.00	0.00
Imaje 5135-9 Black Ink	469	l/yr	1,366.38	l/yr	1.6303 lb/l	2,227.62	22,521.21	0.0000 lb/l	0.00	0.00	0.0000 lb/l	0.00	0.00
Imaje 5191-9 Additive	3,163	l/yr	9,215.08	l/yr	1.7747 lb/l	16,354.01	165,339.04	0.0000 lb/l	0.00	0.00	0.0000 lb/l	0.00	0.00
Imaje 5122 Red Ink	246	l/yr	716.70	l/yr	1.4302 lb/l	1,025.02	10,362.94	0.0191 lb/l	13.69	138.39	0.0000 lb/l	0.00	0.00
Matthews M149 Yellow	246	qt/yr	716.70	qt/yr	0.0000 lb/qt	0.00	0.00	0.0000 lb/qt	0.00	0.00	1.3201 lb/qt	946.11	9,565.18
TOTALS (lbs/yr)						23,160.74	234,155.09		794.72	8,034.59		946.11	9,565.18
TOTALS (tons/yr)						11.58	117.08		0.40	4.02		0.47	4.78

Product	2005 Product Usage (qt/yr) or (l/yr)		Potential ¹ Product Usage (qt/yr) or (l/yr)		Total HAPs			VOC			
					Product ² Content (lb/qt) or (lb/l)	Limited ³ Potential Emissions (lbs/yr)	Maximum ⁵ Potential Emissions (lbs/yr)	Product ² Content (lb/qt) or (lb/l)	Limited ³ Potential Emissions (lbs/yr)	Adjusted ⁴ Limited Potential Emissions (lbs/yr)	Maximum ⁵ Potential Emissions (lbs/yr)
Ink Jet T-17Q Red	216	qt/yr	629.29	qt/yr	1.9038 lb/qt	1,198.05	12,112.29	1.3145 lb/qt	827.21	1,198.05	12,112.29
Ink Jet 175 I Clear (make-up)	495	qt/yr	1,442.13	qt/yr	2.1753 lb/qt	3,137.07	31,715.80	1.6733 lb/qt	2,413.12	3,137.07	31,715.80
Imaje 5135-9 Black Ink	469	l/yr	1,366.38	l/yr	1.6303 lb/l	2,227.62	22,521.21	1.9180 lb/l	2,620.73	2,620.73	26,495.54
Imaje 5191-9 Additive	3,163	l/yr	9,215.08	l/yr	1.7747 lb/l	16,354.01	165,339.04	1.6860 lb/l	15,536.63	16,354.01	165,339.04
Imaje 5122 Red Ink	246	l/yr	716.70	l/yr	1.4493 lb/l	1,038.71	10,501.34	1.9070 lb/l	1,366.74	1,366.74	13,817.74
Matthews M149 Yellow	246	qt/yr	716.70	qt/yr	1.3201 lb/qt	946.11	9,565.18	1.6443 lb/qt	1,178.46	1,178.46	11,914.27
TOTALS (lbs/yr)						24,901.57	251,754.86		23,942.89	25,855.06	261,394.68
TOTALS (tons/yr)						12.45	125.88		11.97	12.93	130.70

Notes:

¹ Potential Product Usages were determined by using a calculated ratio of total feet of pipe produced per total amount of ink and additive used in 2005. The ratio was then used to determine CPFC's potential ink and additive usage based on its permitted production rate of 140,000,000 pounds per year or approximately 406,871,037 feet of pipe (PVC=120,000,000 lbs. corresponding to approximately 218,167,995 ft. and CPVC=20,000,000 lbs. corresponding to approximately 188,703,042 ft). With this explanation, the 2005 Product Usages were multiplied by 2.9134 to get Potential Product Usages. Ink and additive use is directly related to the total length of pipe produced.

² The maximum MEK, Methanol, and Isophorone contents, taken from the product's MSDS chemical content range, were used to determine the air emissions of the individual HAPs from the inkjet printing process. The VOC contents are the actual values provided by the product's MSDS or vendor. In some cases the VOC content is less than the total maximum HAPs contents because the HAPs content ranges from the MSDS were used.

³ Limited potential emissions were estimated by multiplying the facility's potential product usages by each pollutants maximum content in the inks and additives.

⁴ Adjusted emissions of VOCs represent the sum of MEK, Methanol, and Isophorone emissions from each ink and additive. The VOC emissions have been adjusted because the VOC content reported is the actual content provided by the product's MSDS or vendor and in some cases is less than the determined total maximum HAPs contents. This represents the worst case air emissions of VOCs and may be an overestimate.

⁵ Maximum emissions were estimated by multiplying the facility's limited potential emissions by 10.11. An explanation of how the multiplier value was determined can be found in the text portion of this attachment.

Example Calculations:

- Limited Potential MEK Emissions - Ink Jet T-17Q Red (lb/yr) = Product Usage (qt/yr) x Product Content (lb/qt)
= 629.29 (qt/yr) x 1.8131 (lb/qt)
= 1,140.97 lb/yr
- Maximum Potential MEK Emissions- Ink Jet T-17Q Red (lb/yr) = Limited Emissions (lb/yr) x (10.11)
= 1,140.97 (lb/yr) x (10.11)
= 11,535.24 lb/yr

TABLE A-2
MSDS PRODUCT INFORMATION
MAXIMUM CHEMICAL COMPONENTS
INKJET PRINTING PROCESS
Charlotte Pipe & Foundry Company - Plastics Division
Wildwood, Florida

Ink Jet T-17Q Red

Density	0.869	kg/L			
MEK	60 to 100	%	Maximum	100	%
Methanol	1 to 5	%	Maximum	5	%
Isophorone	0	%	Maximum	0	%
VOC	72.5	%	Maximum	72.5	%

<u>Density</u>	0.869	Kg	2.2046	Lb	0.9464	L	1.8131	Lb/qt
	1	L	1	Kg	1	qt		
<u>MEK</u>	0.869	Kg	1	2.2046	Lb	0.9464	L	1.8131
	1	L	1	1	Kg	1	qt	Lb/qt
<u>Methanol</u>	0.869	Kg	0.05	2.2046	Lb	0.9464	L	0.0907
	1	L	1	1	Kg	1	qt	Lb/qt
<u>Isophorone</u>	0.869	Kg	0	2.2046	Lb	0.9464	L	0.0000
	1	L	1	1	Kg	1	qt	Lb/qt
<u>VOC</u>	0.869	Kg	0.725	2.2046	Lb	0.9464	L	1.3145
	1	L	1	1	Kg	1	qt	Lb/qt

** The average MEK, Methanol, and Isophorone contents, taken from the product's MSDS chemical content range, were used to determine the air emissions of the individual HAPs from the ink jet printing process. The VOC content is the actual content provided by the product's MSDS or vendor and in some cases is less than the total maximum HAPs contents.

TABLE A-3
MSDS PRODUCT INFORMATION
MAXIMUM CHEMICAL COMPONENTS
INKJET PRINTING PROCESS
Charlotte Pipe & Foundry Company - Plastics Division
Wildwood, Florida

Ink Jet 175 I Clear (make-up)

Density	0.802	kg/L			
MEK	60 to 100	%	Maximum	100	%
Methanol	10 to 30	%	Maximum	30	%
Isophorone	0	%	Maximum	0	%
VOC	100	%	Maximum	100	%

<u>Density</u>	0.802 Kg	2.2046 Lb	0.9464 L	1.6733 Lb/qt
	1 L	1 Kg	1 qt	
<u>MEK</u>	0.802 Kg	1 2.2046 Lb	0.9464 L	1.6733 Lb/qt
	1 L	1 1 Kg	1 qt	
<u>Methanol</u>	0.802 Kg	0.3 2.2046 Lb	0.9464 L	0.5020 Lb/qt
	1 L	1 1 Kg	1 qt	
<u>Isophorone</u>	0.802 Kg	0 2.2046 Lb	0.9464 L	0.0000 Lb/qt
	1 L	1 1 Kg	1 qt	
<u>VOC</u>	0.802 Kg	1 2.2046 Lb	0.9464 L	1.6733 Lb/qt
	1 L	1 1 Kg	1 qt	

** The average MEK, Methanol, and Isophorone contents, taken from the product's MSDS chemical content range, were used to determine the air emissions of the individual HAPs from the ink jet printing process. The VOC content is the actual content provided by the product's MSDS or vendor and in some cases is less than the total maximum HAPs contents.

TABLE A-4
MSDS PRODUCT INFORMATION
MAXIMUM CHEMICAL COMPONENTS
INKJET PRINTING PROCESS
Charlotte Pipe & Foundry Company - Plastics Division
Wildwood, Florida

5135-9 Blk (image)

Density	0.87	kg/L			
MEK	75 to 85	%	Maximum	85	%
Methanol	0	%	Maximum	0	%
Isophorone	0	%	Maximum	0	%
VOC	100	%	Maximum	100	%

<u>Density</u>	0.87	Kg	2.2046	Lb	1.9180	Lb/L	
	1	L	1	Kg			
<u>MEK</u>	0.87	Kg	0.85	2.2046	Lb	1.6303	Lb/L
	1	L	1	1	Kg		
<u>Methanol</u>	0.87	Kg	0	2.2046	Lb	0.0000	Lb/L
	1	L	1	1	Kg		
<u>Isophorone</u>	0.87	Kg	0	2.2046	Lb	0.0000	Lb/L
	1	L	1	1	Kg		
<u>VOC</u>	0.87	Kg	1	2.2046	Lb	1.9180	Lb/L
	1	L	1	1	Kg		

** The average MEK, Methanol, and Isophorone contents, taken from the product's MSDS chemical content range, were used to determine the air emissions of the individual HAPs from the ink jet printing process. The VOC content is the actual content provided by the product's MSDS or vendor and in some cases is less than the total maximum HAPs contents.

TABLE A-5
MSDS PRODUCT INFORMATION
MAXIMUM CHEMICAL COMPONENTS
INKJET PRINTING PROCESS
Charlotte Pipe & Foundry Company - Plastics Division
Wildwood, Florida

5191-9 Additive (imaje) (clear)

Density	0.805	kg/L			
MEK	>90	%	Maximum	100	%
Methanol	0	%	Maximum	0	%
Isophorone	0	%	Maximum	0	%
VOC	95	%	Maximum	95	%

Density	0.805	Kg	2.2046	Lb	1.7747	Lb/L
	1	L	1	Kg		
MEK	0.805	Kg	1	2.2046	Lb	1.7747
	1	L	1	1	Kg	
Methanol	0.805	Kg	0	2.2046	Lb	0.0000
	1	L	1	1	Kg	
Isophorone	0.805	Kg	0	2.2046	Lb	0.0000
	1	L	1	1	Kg	
VOC	0.805	Kg	0.95	2.2046	Lb	1.6860
	1	L	1	1	Kg	

** The average MEK, Methanol, and Isophorone contents, taken from the product's MSDS chemical content range, were used to determine the air emissions of the individual HAPs from the ink jet printing process. The VOC content is the actual content provided by the product's MSDS or vendor and in some cases is less than the total maximum HAPs contents.

TABLE A-6
MSDS PRODUCT INFORMATION
MAXIMUM CHEMICAL COMPONENTS
INKJET PRINTING PROCESS
Charlotte Pipe & Foundry Company - Plastics Division
Wildwood, Florida

5122 Red (image)

Density	0.865	kg/L			
MEK	65 to 75	%	Maximum	75	%
Methanol	<1	%	Maximum	1	%
Isophorone	0	%	Maximum	0	%
VOC	100	%	Maximum	100	%

Density	0.865 Kg	2.2046 Lb	1.9070 Lb/L
	1 L	1 Kg	

MEK	0.865 Kg	0.75	2.2046 Lb	1.4302 Lb/L
	1 L	1	1 Kg	

Methanol	0.865 Kg	0.01	2.2046 Lb	0.0191 Lb/L
	1 L	1	1 Kg	

Isophorone	0 Kg	0	2.2046 Lb	0.0000 Lb/L
	1 L	1	1 Kg	

VOC	0.865 Kg	1	2.2046 Lb	1.9070 Lb/L
	1 L	1	1 Kg	

** The average MEK, Methanol, and Isophorone contents, taken from the product's MSDS chemical content range, were used to determine the air emissions of the individual HAPs from the ink jet printing process. The VOC content is the actual content provided by the product's MSDS or vendor and in some cases is less than the total maximum HAPs contents.

TABLE A-7
MSDS PRODUCT INFORMATION
MAXIMUM CHEMICAL COMPONENTS
INKJET PRINTING PROCESS
Charlotte Pipe & Foundry Company - Plastics Division
Wildwood, Florida

Matthews M149 Yellow

Density	1.11	kg/L			
MEK	0	%	Maximum	0	%
Methanol	0	%	Maximum	0	%
Isophorone	35 to 57	%	Maximum	57	%
VOC	71	%	Maximum	71	%

<u>Density</u>	1.11	Kg	2.2046	Lb	0.9464	L	2.3159	Lb/qt
	1	L	1	Kg	1	qt		
<u>MEK</u>	1.11	Kg	0	2.2046	Lb	0.9464	L	0.0000
	1	L	1	1	Kg	1	qt	Lb/qt
<u>Methanol</u>	1.11	Kg	0	2.2046	Lb	0.9464	L	0.0000
	1	L	1	1	Kg	1	qt	Lb/qt
<u>Isophorone</u>	1.11	Kg	0.57	2.2046	Lb	0.9464	L	1.3201
	1	L	1	1	Kg	1	qt	Lb/qt
<u>VOC</u>	1.11	Kg	0.71	2.2046	Lb	0.9464	L	1.6443
	1	L	1	1	Kg	1	qt	Lb/qt

** The average MEK, Methanol, and Isophorone contents, taken from the product's MSDS chemical content range, were used to determine the air emissions of the individual HAPs from the ink jet printing process. The VOC content is the actual content provided by the product's MSDS or vendor and in some cases is less than the total maximum HAPs contents.

ATTACHMENT B
MATERIAL SAFETY DATA SHEETS

MSDS LIST

1. Ink Jet T-17Q Red
2. Ink Jet 175 I Clear (make-up)
3. Imaje 5135-9 Black Ink
4. Imaje 5191-9 Additive
5. Imaje 5122 Red
6. Matthews M149 Yellow

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MSDS #1

Page 1 of 4

**MATERIAL SAFETY DATA SHEET****Ink
17 RED****SECTION I - PREPARATION INFORMATION**

This MSDS complies with 29 CFR 1910.1200, and was prepared by the Environmental, Health, and Safety Manager of InkJet, Inc. 11111 InkJet Way, Willis, TX 77378. Non-Emergency Phone (936) 856-6600.

Product Name 17 RED Ink
Product Code X(01,19,21,45)0111
Emergency Phone contact CHEMTREC at (800) 424-9300
Original document date: 01/98

Date of revisions: 10/02

SECTION II - IDENTIFICATION

Product Name 17 RED Ink
Product Use Ink Jet Printers
Description Dark liquid with solvent odor

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM (HMIS)

HAZARD RATINGS: 0 Minimal 1 Slight 2 Moderate 3 Serious 4 Extreme B Hand & Eye Protection
HEALTH 1 FLAMMABILITY 3 REACTIVITY 0 PERSONAL PROTECTION B

NOTICE: These ratings are for general rapid interpretation. The end-user is responsible for determining the proper protective procedures.

SECTION III - HAZARDOUS INGREDIENTS

Ingredient	CAS#	%	TLV*	PEL*	LD ₅₀ ** g/kg	LC ₅₀ ** g/m ³
Methyl Ethyl Ketone	78-93-3	60-100	200	200	2.7	23.5 g/m ³ / 8hr
Ethanol	64-17-5	10-30	1000	1000	7.0	20,000ppm/10h
Isopropanol	67-63-0	1-5	400	400	5.04	12,000ppm/ 8hr
Methanol	67-56-1	1-5	200	200	5.6	64,000ppm/ 4hr

SECTION IV - PHYSICAL DATA

Boiling Range	80° C
Melting Range	-80 to -85° C
Freezing Range	-80 to -85° C
Vapor Pressure	70 mm of Hg @ 20° C
Vapor Density (Air=1)	Greater than air
Solubility In Water	Miscible
Solubility In Organic Solvents	Miscible
Specific Gravity (Water 1)	0.869
Percent Volatile By Volume (%)	72.8%
Evaporation Rate (N-Butyl Acetate=1)	3.8
pH in concentrate	Not Applicable
pH in dilution as used	Not Applicable
Appearance And Odor	Dark liquid with solvent odor
Odor Threshold	Not Available

17 RED INK

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SECTION V - FIRE AND EXPLOSION HAZARD

Flash Point (Tcc)	-5° C
Auto Ignition Temperature	-500° C
Upper Flammable Limit (%By Vol.)	36.5
Lower Flammable Limit (%By Vol.)	2.1
Hazardous Combustion Products	Carbon Monoxide, Carbon Dioxide & Acrid Smoke
Extinguishing Media	Regular foam or dry chemical
Explosion Data (Sensitive To Mechanical Impact)	No
Explosion Data (Sensitive To Static Discharge)	Yes

FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus with full facepiece operated in the positive pressure demand mode

SECTION VI - REACTIVE DATA

Condition Of Instability	None Known
Incompatibility	None Known
Conditions Of Reactivity	Not applicable
Hazardous Decomposition Products	Carbon Monoxide, Carbon Dioxide, & Acrid Smoke

SECTION VII - TOXICOLOGICAL PROPERTIES (HEALTH HAZARD)

ROUTES OF ENTRY: Skin contact, skin absorption, ingestion, inhalation, and eyes

EFFECT OF ACUTE EXPOSURE:

Eyes	May cause extreme eye irritation. Symptoms may include burning, tearing, redness, swelling and eye damage.
Skin	Exposure may cause skin irritation. Prolonged or repeated exposure may dry the skin. Symptoms may include redness, burning, drying, cracking, and skin damage.
Breathing	Excessive inhalation of vapors can cause nasal and respiratory irritation. Central nervous system effects include dizziness, weakness, fatigue, nausea, headache, possible unconsciousness and even death. Inhalation of material into the lungs can cause chemical pneumonitis, which can be fatal.
Swallowing	Can cause gastrointestinal irritation, nausea, vomiting, diarrhea, blindness and death.

Exposure Limits	See section III
Sensitization To Product	Not Available
Carcinogenicity	Not Available
Reproductive Toxicity	Not Available
Teratogenicity	Not Available
Mutagenicity	Not Available
Toxicological Synergistic Products	None known

EFFECTS OF CHRONIC EXPOSURE:

Methyl Ethyl Ketone - Minor embryotoxic/fetotoxic effects have been observed in laboratory rats exposed to methyl ethyl ketone by inhalation at levels greater than 1000 ppm (5 times the OSHA-PEL/TWA) for most of the gestation period. Methyl ethyl ketone may potentiate (shorten the time of onset) peripheral neuropathy, but methyl ethyl ketone, by itself, has not been shown to cause peripheral neuropathy.

Ethanol - Nausea, vomiting, flushing, mental excitement or depression, drowsiness, impaired perception, uncoordination, stupor, coma and death may occur.

Methanol - Poisoning may occur from ingestion. Other symptoms of over-exposure may be headaches, acidosis, convulsions, mydriasis, circulatory collapse, respiratory failure and death.

Isopropanol - Ingestion or inhalation of large quantities of vapor may cause flushing, headache, dizziness, mental depression, nausea, vomiting, narcosis, anesthesia, coma and death.

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SECTION VIII - PREVENTATIVE MEASURES**PERSONAL PROTECTION:**

Respiratory protection	If workplace exposure limit(s) of product or any other component is exceeded, a NIOSH/OSHA approved respirator is advised. (See your safety equipment supplier for specific details.)
Ventilation	Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below PEL/ TLV.
Protective gloves	Wear chemical resistant gloves. (Consult your safety equipment supplier.)
Eye protection	Wear chemical splash goggles in compliance with OSHA regulations. However, OSHA regulations also permit other types of safety glasses.
Other protective equipment	Wear impervious clothing and boots to prevent prolonged exposure.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Keep away all sources of ignition from spill. If spill is indoors, ventilate areas of spill and soak up the spill with absorbent material. Do not let spilled or leaking material enter watercourse.

DISPOSAL METHOD: Absorb in vermiculite, floor absorbent or other absorbent material and dispose in licensed facility. Observe all federal, state and local regulations.

HANDLING AND STORAGE: Protect from freezing. Overheating may cause container to rupture. Covered storage is preferable.

SPECIAL SHIPPING INFORMATION: SEE SECTION X

SECTION IX - FIRST AID MEASURES

Oral Ingestion	Seek immediate medical attention.
Eye Contact	Flush with water for 15 minutes and seek medical attention.
Skin Contact	Wash with soap and water. Wash contaminated clothing before reuse.
Skin Absorption	If skin irritation persists, seek medical attention.
Inhalation	Remove to fresh air, give artificial respiration and seek medical attention.
Effects Of Overexposure	May cause headaches if inhaled. Seek medical attention. If swallowed, can cause drunken-type behavior followed by severe systemic illness.

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SECTION X - TRANSPORTATION

DOT / TDG Proper Shipping Name
DOT / TDG Hazard Class
DOT / TDG Label

Printing Ink UN1210
3
FLAMMABLE LIQUID

SECTION XI - DISCLAIMER

Every effort has been made to ensure that the information in this MSDS is accurate, and as complete as reasonably possible and of course all data herein are given in good faith. However, all information is furnished without warranty of any kind, and InkJet, Inc., expressly negates any warranty of accuracy, expressed or implied; and InkJet, Inc., assumes no responsibility for personal injury or damage to property to customers, vendors, or third parties if any information herein proves to be incorrect in any respect. Purchasers are encouraged to make independent determination of suitability and completeness of information from all sources to assure proper use and compatibility of product.

*NIOSH Publication #94-116 **Sax's Dangerous Properties of Industrial Mtls. 8th Ed.

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MSDS #2

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MATERIAL SAFETY DATA SHEET

Make-Up
175i

SECTION I - PREPARATION INFORMATION

This MSDS complies with 29 CFR 1910.1200, and was prepared by the Environmental, Health, and Safety Manager of InkJet, Inc., 11111 InkJet Way, Willis, TX 77378. Non-Emergency Phone (936) 856-6600

Product Name 175i
Product Code X(01,19,21,29,35,36,40,41,45,50,65,66,67,68)0097
Emergency Phone contact CHEMTREC at (800) 424-9300

Original document date: 09/99

Date of revisions: 06/03

SECTION II - IDENTIFICATION

Product Name 175i
Product Use Ink Jet Printers
Description Clear liquid with solvent odor

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM (HMIS)

HAZARD RATINGS: 0 Minimal 1 Slight 2 Moderate 3 Serious 4 Extreme B Hand & Eye Protection
HEALTH 1 FLAMMABILITY 3 REACTIVITY 0 PERSONAL PROTECTION B

NOTICE: These ratings are for general rapid interpretation. The end-user is responsible for determining the proper protective procedures.

SECTION III - HAZARDOUS INGREDIENTS

Ingredient	CAS#	%	TLV*	PEL*	LD ₅₀ ** g/kg	LC ₅₀ ** g/m ³
Methyl Ethyl Ketone	78-93-3	60-100	200	200	2.7	23.5 g/m ³ / 8hr
Methanol	67-56-1	10-30	200	200	5.6	64,000ppm/ 4hr
Ethanol	64-17-5	3-7	1000	1000	7.0	20,000ppm/10h

SECTION IV - PHYSICAL DATA

Boiling Range	78 to 80° C
Melting Range	-80° C
Freezing Range	-80° C
Vapor Pressure	~82mm of Hg @ 20° C
Vapor Density (Air=1)	Greater than air
Solubility In Water	Miscible
Solubility In Organic Solvents	Miscible
Specific Gravity (Water=1)	0.802

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SECTION V - FIRE AND EXPLOSION HAZARD

Flash Point (Tcc)	-2° C
Auto Ignition Temperature	422 to 516° C
Upper Flammable Limit (%By Vol.)	37
Lower Flammable Limit (%By Vol.)	1.7
Hazardous Combustion Products	Carbon Monoxide, Carbon Dioxide
Extinguishing Media	Regular foam or dry chemical
Explosion Data (Sensitive To Mechanical Impact)	No
Explosion Data (Sensitive To Static Discharge)	Yes

FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus with full facepiece operated in the positive pressure demand mode.

SECTION VI - REACTIVE DATA

Condition Of Instability	None Known
Incompatibility	Strong oxidizing agents
Conditions Of Reactivity	Not applicable
Hazardous Decomposition Products	Carbon Monoxide, Carbon Dioxide

SECTION VII - TOXICOLOGICAL PROPERTIES (HEALTH HAZARD)

ROUTES OF ENTRY: Skin contact, skin absorption, ingestion, inhalation, and eyes
EFFECT OF ACUTE EXPOSURE:

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SECTION V - FIRE AND EXPLOSION HAZARD

Flash Point (Tcc)	-2° C
Auto Ignition Temperature	422 to 516° C
Upper Flammable Limit (%By Vol.)	37
Lower Flammable Limit (%By Vol.)	1.7
Hazardous Combustion Products	Carbon Monoxide, Carbon Dioxide
Extinguishing Media	Regular foam or dry chemical
Explosion Data (Sensitive To Mechanical Impact)	No
Explosion Data (Sensitive To Static Discharge)	Yes

FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus with full facepiece operated in the positive pressure demand mode.

SECTION VI - REACTIVE DATA

Condition Of Instability	None Known
Incompatibility	Strong oxidizing agents
Conditions Of Reactivity	Not applicable
Hazardous Decomposition Products	Carbon Monoxide, Carbon Dioxide

SECTION VII - TOXICOLOGICAL PROPERTIES (HEALTH HAZARD)

ROUTES OF ENTRY: Skin contact, skin absorption, ingestion, inhalation, and eyes

EFFECT OF ACUTE EXPOSURE:

Eyes	May cause extreme eye irritation. Symptoms may include burning, tearing, redness, swelling and eye damage.
Skin	Exposure may cause skin irritation. Prolonged or repeated exposure may dry the skin. Symptoms may include redness, burning, drying, cracking, and skin damage.
Breathing	Excessive inhalation of vapors can cause nasal and respiratory irritation. Central nervous system effects include dizziness, weakness, fatigue, nausea, headache, possible unconsciousness and even death. Inhalation of material into the lungs can cause chemical pneumonitis, which can be fatal.
Swallowing	Can cause gastrointestinal irritation, nausea, vomiting, diarrhea, blindness and death.

Exposure Limits	See section III
Sensitization To Product	Not Available
Carcinogenicity	Not Available
Reproductive Toxicity	Not Available
Teratogenicity	Not Available
Mutagenicity	Not Available
Toxicological Synergistic Products	None known

EFFECTS OF CHRONIC EXPOSURE:

Methyl Ethyl Ketone - Minor embryotoxic/fetotoxic effects have been observed in laboratory rats exposed to methyl ethyl ketone by inhalation at levels greater than 1000 ppm (5 times the OSHA-PEL/TWA) for most of the gestation period. Methyl ethyl ketone may potentiate (shorten the time of onset) peripheral neuropathy, but methyl ethyl ketone, by itself, has not been shown to cause peripheral neuropathy.

Methanol - Poisoning may occur from ingestion. Other symptoms of over-exposure may be headaches, acidosis, convulsions, mydriasis, circulatory collapse, respiratory failure and death.

Ethanol - Nausea, vomiting, flushing, mental excitement or depression, drowsiness, impaired perception, uncoordination, stupor, coma and death may occur.

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SECTION VIII - PREVENTATIVE MEASURES**PERSONAL PROTECTION:**

Respiratory protection

If workplace exposure limit(s) of product or any other component is exceeded, a NIOSH/OSHA approved respirator is advised. (See your safety equipment supplier for specific details.)

Ventilation

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below PEL/ TLV.

Protective gloves

Wear chemical resistant gloves. (Consult your safety equipment supplier.)

Eye protection

Wear chemical splash goggles in compliance with OSHA regulations. However, OSHA regulations also permit other types of safety glasses.

Other protective equipment

Wear impervious clothing and boots to prevent prolonged exposure.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Keep away all sources of ignition from spill. If spill is indoors, ventilate areas of spill and soak up the spill with absorbent material. Do not let spilled or leaking material enter watercourse.

DISPOSAL METHOD: Absorb in vermiculite, floor absorbent or other absorbent material and dispose in licensed facility. Observe all federal, state and local regulations.

HANDLING AND STORAGE: Protect from freezing. Overheating may cause container to rupture. Covered storage is preferable.

SPECIAL SHIPPING INFORMATION: SEE SECTION X

SECTION IX - FIRST AID MEASURES

Oral Ingestion

Seek immediate medical attention.

Eye Contact

Flush with water for 15 minutes and seek medical attention.

Skin Contact

Wash with soap and water. Wash contaminated clothing before reuse.

Skin Absorption

If skin irritation persists, seek medical attention.

Inhalation

Remove to fresh air, give artificial respiration and seek medical attention.

Effects Of Overexposure

May cause headaches if inhaled. Seek medical attention. If swallowed, can cause drunken-type behavior followed by severe systemic illness.

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Cin O'Neal / InkJet, Inc. 936-856-0358

P. 1

Rev. D00004

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SECTION X - TRANSPORTATION

DOT / TDG Proper Shipping Name	Flammable Liquid NOS (Methyl Ethyl Ketone, Methanol) UN 1993
DOT / TDG Hazard Class	3
DOT / TDG Label	Flammable Liquid

SECTION XI - DISCLAIMER

Every effort has been made to ensure that the information in this MSDS is accurate, and as complete as reasonably possible and of course all data herein are given in good faith. However, all information is furnished without warranty of any kind, and InkJet, Inc., expressly negates any warranty of accuracy, expressed or implied; and InkJet, Inc. assumes no responsibility for personal injury or damage to property to customers, vendors, or third parties if any information herein proves to be incorrect in any respect. Purchasers are encouraged to make independent determination of suitability and completeness of information from all sources to assure proper use and compatibility of product.

*NIOSH Publication #94-116 **Sax's Dangerous Properties of Industrial Mtls. 10th Ed.

MSDS #3

IMAGE INK JET PRINTING CORPORATION
Material Safety Data Sheet

SH-5135E A DATED: 10/3/2002
page 1/6

The attention of the user is drawn to the risks brought upon by the misuse of the product. This data sheet does not exempt the user from knowing and applying the relevant regulations. It is responsibility of the user to take all precautions necessary to the use of the product. The information contained in this publication is given in good faith, and to the best of our knowledge at the time of edition.

1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 PRODUCT IDENTIFICATION

Name : 5135E
Chemical family : Ketone-based ink
Synonyms : n/a

1.2 COMPANY IDENTIFICATION

IMAGE INK JET PRINTING CORPORATION
1650 Airport Road, Suite 101
Kennesaw, Georgia 30144
Tel : (770) 421 7700
Fax : (770) 421 7702

DISTRIBUTOR IDENTIFICATION
(if other than the company)

1.3 EMERGENCY PHONE NUMBER

1-800-424-9300


2 - COMPOSITION / INFORMATION ON INGREDIENTS

Type of product: PREPARATION

<u>INGREDIENTS CONTRIBUTING TO THE HAZARD</u>	<u>CAS N°</u>	<u>EEC N°</u>	<u>%</u>	<u>RISK</u>	<u>RISK SYMBOL(S)</u>
Methyl ethyl ketone (#)	78-93-3	606-002-00-3	75-85	Highly flammable Irritating to eyes and respiratory system Repeated exposure may cause skin dryness or cracking Vapors may cause drowsiness and dizziness	R11 R36/37 R66 R67
Amine salt of 1:2 chromium monoazo complex			<10	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment	R51/53
Cellulose nitrate		603-037-01-3	<10	Highly flammable	R11
Propan-2-ol	67-63-0	603-117-00-0	<3	Highly flammable Irritating to eyes Vapors may cause drowsiness and dizziness	R11 R36 R67

The ingredients not listed are not considered as dangerous substances according to amended directive 67/548/EEC; and to 29 CFR 1910-1200 (USA).

(#) This component is subject to the reporting requirements of Section 313 of SARA Title III and 40CFR 372.

	<u>reference :</u>	5135E
	<u>designation :</u>	INK - BASE 1 - BLACK

S H - 5 1 3 5 E A

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3 - HAZARDS IDENTIFICATION

HEALTH HAZARDS

Irritating to eyes and respiratory system. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness. Harmful to aquatic organisms. may cause long-term adverse effects in the aquatic environment

PHYSICAL AND CHEMICAL HAZARDS : FIRE AND EXPLOSION HAZARDS

Highly flammable. Leaks of gas or spills of liquid can readily form flammable mixtures at temperatures at or above flashpoint.

	HMIS*	NFPA*
Health	2	2
Flammability	3	3
Reactivity	0	0

4 - FIRST AID MEASURES

Inhalation

Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Have the person rest. Call for prompt medical attention

Skin contact

Rinse with large amounts of water, use soap if available. Remove grossly contaminated clothing, including shoes, and launder before reuse. Get medical attention if irritation persists.

Eye contact

Immediately flush out eyes with large amounts of water for at least 15 minutes. Use an eye flush. Get medical attention rapidly

Ingestion

If swallowed, do not induce vomiting. Have the person rest. Give activated medical carbon. Get medical attention rapidly

5 - FIRE-FIGHTING MEASURES

FIRE FIGHTING PROCEDURE

Use water spray to cool fire-exposed surfaces and to protect personnel. Stop leak if possible. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect those attempting to stop a leak. Either allow fire to burn under controlled conditions or extinguish with foam or dry chemical. Try to cover liquid spills with foam. Do not use a water extinguisher when printers are on fire.

SPECIAL FIRE PRECAUTIONS

See also Section 4 "First aid measures" as well as Section 10 "Stability and Reactivity"

HAZARDOUS COMBUSTION PRODUCTS

No unusual products.

6 - ACCIDENTAL RELEASE MEASURES

LAND OR WATER SPILL

Eliminate sources of ignition. Warn occupants of room of fire and explosion hazard. Prevent liquid from entering sewers, waterways, or low areas. Shut off source if possible. Advise authorities if product has entered a watercourse or sewer or has contaminated soil or vegetation. Take measures to minimize the effect on ground water. Absorb and prevent spread of spilled liquid with sand, sawdust or earth by means of shovels and buckets, and transfer to secure containers to facilitate its disposal and recycling. Recovery by pumping with an explosion-proof or hand pump is also permissible

In the event of uncontrolled release of this material the user should determine if the release is reportable under applicable laws and regulations

Disposal of recovered material must be made according to local regulations.

S H - 5 1 3 5 E A

7 - HANDLING AND STORAGE

Storage temperature : < 35 °C (< 95 °F)

Transport temperature : < 35 °C (< 95 °F) Keep the product in its original polyethylene container

Storage/handling, general notes

Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Handle and store in a cool, well-ventilated place away from incompatible materials, ignition and heat source. Protect material from direct sunlight. The floor of the shop must be incombustible and act as a retainer so that spilled liquid will not spread out. Do not pressurize, cut, heat or weld containers. Empty product containers may contain product residue. Do not reuse empty containers without commercial cleaning or reconditioning. Container remains hazardous when empty. Continue to observe all precautions.

8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING MEASURES

The use of mechanical dilution ventilation is recommended whenever this product is used in a confined space, is heated above ambient temperature or otherwise to maintain ambient concentration below the threshold limits. Use explosion-proof ventilation equipment.

WORKPLACE EXPOSURE LIMITS

European Community:	Limit value (8 hours)	Limit value (short-term)		
Methylethylketone	200ppm (600mg/m ³)	300ppm (900 mg/m ³)		
Propan-2-ol		400ppm (980 mg/m ³)		
USA:	OSHA*	ACGIH*	ACGIH	
	PEL-TWA*	TLV-TWA*	TLV-STEL*	
Methylethylketone	200ppm (590mg/m ³)	200ppm (590mg/m ³)	300ppm (885 mg/m ³)	
2-Propanol	400ppm (985 mg/m ³)	400ppm (985 mg/m ³)	500ppm (1230 mg/m ³)	

PERSONAL PROTECTION

Handle in the presence of adequate ventilation.

Respiratory protection .

Where exposure is likely to exceed acceptable criteria use approved respiratory protection equipment.

Protective clothing :

Wear natural or butyl rubber gloves and protective clothing, which are impervious to the product for the duration of the anticipated exposure. Gloves should be replaced immediately if signs of degradation are observed.

Eye protection :

Wear safety glasses

9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form/color	black liquid
Odor	characteristic, ketone
pH (at 20°C (68°F))	not applicable
Freezing/melting point	<-85°C (-121°F)
Boiling point	>75°C (167°F)
Flashpoint (in a closed cup)	about - 9 °C (16 °F)
Self-ignition temperature	> 400 °C (> 752 °F)
Explosive limits (in air)	1.8 – 12.0 Vol. %
Vapor pressure (at 25 °C , 77 °F)	13.3 kPa (Methylethylketone)
Density (20 / 20)	0.86 < < 0.87
Vapor density (/air)	> 1
Solubility in water (at 20 °C , 68 °F)	partial
Is material hygroscopic ?	slightly
n-octanol / water partition coefficient (logP(o/w))	0.26 (Methylethylketone)

Note : The flashpoint of the product has not been determined. The flashpoint indicated is that of the solvent with the lowest one

10 - STABILITY AND REACTIVITY

Stability	stable
Hazardous polymerization	no
Materials and conditions to avoid (incompatibility)	strong oxidizing agents
Hazardous decomposition products	none

11 - TOXICOLOGICAL INFORMATION

ACUTE

Inhalation:

Vapor concentrations above recommended exposure levels may be irritating to the eyes and the respiratory tract, may cause headaches and dizziness, could be anesthetic and may cause other effects on the central nervous system.
LC₅₀* (rat, 4 hours) > 9000ppm (Methylethylketone)

Skin contact:

Frequent or prolonged contact may defeat and dry the skin, leading to discomfort and dermatitis.
LD₅₀* (rabbit) = 13g/kg (Methylethylketone)

Eye contact:

Irritating. Will injure eye tissue if not removed promptly.

Ingestion:

Small amounts of liquid aspirated into the respiratory system during ingestion or vomiting may cause bronchopneumonia or pulmonary edema.
LD₅₀* (rat) = 3000mg/kg (Methylethylketone)

CHRONIC

There is no evidence that exposure to Methylethylketone alone causes progressive or irreversible neurotoxic effects. However, simultaneous over-exposure to Methylethylketone and to n-Hexane or 2-Hexanone or Toluene can increase the risk of neuropathy linked to them.

OTHERS

Pregnant women should avoid handling and exposure.

No component of this product has been identified as a carcinogen by the International Agency for Research on Cancer (IARC).

12 - ECOLOGICAL INFORMATION

Methyl ethyl ketone

WGK*	1
Mobility:	This substance is relatively volatile.
Degradability:	Readily biodegradable
Ecotoxicity:	LC ₅₀ * (fish, 96 hours) = 4600mg/l EC ₅₀ * (daphnia, 48 hours) = 7060mg/l EC ₅₀ * (bacteria, 16 hours) = 1150mg/l

Amine salt of 1:2 chromium/monoazo complex

Degradability:	Not biodegradable
Ecotoxicity:	LC ₅₀ * (fish, 96 hours) = 2mg/l EC ₅₀ * (daphnia, 24 hours) = 1000mg/l

Propan-2-ol

WGK*

S H - 5 1 3 5 E A

13 - DISPOSAL CONSIDERATIONS

Empty containers should be taken for recycling, recovery or disposal through a suitably qualified or licensed contractor. This product is not suitable for disposal by either landfill or via municipal sewers, drains, natural streams or rivers. This product can be burned directly in the appropriate facility. Disposal of material must be made according to local regulations.

14 - TRANSPORT INFORMATION

Land: road/railway (RTMDR/F, ADR/RID)

Name of substance: Printing Ink

Classification		Label	Identification		
Class	Enumeration figure and letter	Label N° of the packaging	danger code	material code	Label plates of tank trucks
3	5° (b)	3	33	1210	3

Partial exemption: 300 liters

Total exemption: 5 Liters per inner container and 20 Liters per package

Sea (IMDG)

Proper Shipping Name: Printing Ink

UN N°	Class	Subsidiary risk labels	Packing group	Special Provision s	Limited Quantities	Packing / IBC*		Safety Sheet N°	Stowage and Segregation
						Instructions	Provision s		
1210	3		II	163	1L	P001/IBC02	PP1/-	3-05	Category B

Marine pollutant: no

Air (OAC/IATA)

Proper Shipping Name: Printing Ink

UN N°	Class	Subsidiary Risk labels	Hazard Labels	Packing Group	Passenger aircraft		Cargo aircraft		Special Provision s	ERG* code
					Packing instruction s	Net quantity max / packaging	Packing instruction s	Net quantity max / packaging		
1210	3	-	3	II	Y305/305	5L/1L	307	60L	A72	3L

15 - REGULATORY INFORMATION

CLASSIFICATION AND LABELLING ACCORDING TO EEC DIRECTIVES

Governing directives: amended 67/548/EEC (dangerous substances) and Directive 1999/45/EC (dangerous preparations)

Label name: 5135E

Symbols and indications of danger:



F+ Highly flammable



Xi Irritant

NATURE OF SPECIAL RISK

R11 Highly flammable

R36/37 Irritating for eyes and respiratory system

R6b Repeated exposure may cause skin dryness or cracking

R67 Vapors may cause drowsiness and dizziness

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

SAFETY ADVICE

S9 Keep container in a well ventilated place

S16 Keep away from sources of ignition - No smoking

S25 Avoid contact with eyes

S33 Take precautionary measures against static discharges

S H - 5 1 3 5 E A

16 - OTHER INFORMATION

In the United States the dangerous components of this product are mentioned in the following lists

- 1A Toxic Substance Control Act (TSCA) Section 4(a) Final Test and Consent Agreement Substances
- 1Mb Toxic Substance Control Act (TSCA) Section 12(b) One-Time Export Notification Substances
- 2 Toxic Substance Control Act (TSCA) chemical Hazard Information Profile (CHIP) Substances
- 5B Clean Air Act Section 111 Volatile Organic Compound
- 5D Clean Air Act Section 112 Statutory Air Pollutants (1990 Amendments)
- 6 National Institute for Occupational Safety and Health (NIOSH) Recommendation Substances
- 7A Resource Conservation and Recovery Act (RCRA) Hazardous Substances
- 7B Resource Conservation and Recovery Act (RCRA) Hazardous Constituents for Ground Water Monitoring
- 8A Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances
- 8C Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 Toxic Chemicals
- 8D Superfund Amendments and Reauthorization Act (SARA) Title III Section 110 Priority List of CERCLA Hazardous Substances
- 9A Occupational Safety and Health Administration (OSHA) Air Contaminants (Tables Z1, Z2 and Z3)
- 9D American Council of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value Chemicals
- 9F International Agency for Research on Cancer (IARC) Unclassifiable and Probably Noncarcinogenic Substances and Exposures (Group 3 or 4)
- 9H Occupational Safety and Health Administration (OSHA) Table Z-1-A [revoked]
- 11B Drug Enforcement Agency (DEA) Essential Chemicals
- 13A Department of Transportation (DOT) Hazardous Materials Table
- 13B Department of Transportation (DOT) Appendix A (CERCLA List) Hazardous Substances Other Than Radionuclides
- MA1 Massachusetts Substance List
- NJ1 New Jersey Right to Know Hazardous Substance List
- PA1E Pennsylvania Hazardous Substances List - Environmental Hazard

In Canada, the dangerous components of this product are mentioned in the following lists:

- CN1 Canadian Workplace Hazardous Materials Information System (WHMIS) Ingredient Disclosure List - ingredient must be disclosed at concentration of 1%

The user of the product must refer to official regulations concerning his obligations

ABBREVIATIONS

- EEC European Economic Community
- ISO International Organization for Standardization
- INRS Institut national de recherche et de sécurité
- CAS N° Chemical Abstracts Service Number
- HMS Hazardous Material Information System
- NFPA National Fire Protection Association
- PEL Permissible Exposure Level
- TWA Time Weighted Average
- TLV Threshold Limit Value
- STEL Short Term Exposure Limit
- IBC Intermediate bulk container
- ERG Emergency Response Drill
- IMDG International Maritime Dangerous Goods
- IATA International Air Transportation Association
- EINECS European inventory of existing commercial chemical substances
- LC₅₀ Lethal concentration 50%
- LD₅₀ Lethal dose 50%
- EC₅₀ Effect concentration 50%
- WGK Wassergefährdungsklasse
- ADR European Agreement concerning the international carriage of dangerous goods by road
- UN United Nations
- EC European Community

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MSDS #4

IMAGE INK JET PRINTING CORPORATION
Material Safety Data Sheet

SH-5191 D DATED: 1/24/2003
page 1/5

The attention of the user is drawn to the risks brought upon by the misuse of the product. This data sheet does not exempt the user from knowing and applying the relevant regulations. It is responsibility of the user to take all precautions necessary to the use of the product. The information contained in this publication is given in good faith, and to the best of our knowledge at the time of edition.

1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 PRODUCT IDENTIFICATION

Name : 5191
Chemical family : Ketone-based additive
Synonyms : n/a

1.2 COMPANY IDENTIFICATION

IMAGE INK JET PRINTING CORPORATION
1650 Airport Road, Suite 103
Kennesaw, Georgia 30144
Tel : (770) 421 7700
Fax : (770) 421 7702

DISTRIBUTOR IDENTIFICATION

(if other than the company)

1.3 EMERGENCY PHONE NUMBER

1-800-424-9300

2 - COMPOSITION / INFORMATION ON INGREDIENTS

Type of product: PREPARATION

<u>INGREDIENTS CONTRIBUTING TO THE HAZARD</u>	<u>CAS N°</u>	<u>EEC N°</u>	<u>%</u>	<u>RISK</u>	<u>RISK SYMBOL(S)</u>
Methylethylketone	78-93-3	606-002-00-3	>90	Highly flammable Irritating to eyes Repeated exposure may cause skin dryness or cracking Vapors may cause drowsiness and dizziness	R11 R36 R66 R67

The ingredients not listed are not considered as dangerous substances according to directive 67/548/EEC, point 4 ; and to 29 CFR 1910-1200 (USA).

3 - HAZARDS IDENTIFICATION

ADVERSE HUMAN HEALTH AND ENVIRONMENTAL EFFECTS

Irritating to eyes. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.

PHYSICAL AND CHEMICAL HAZARDS

Highly flammable. Leaks of gas or spills of liquid can readily form flammable mixtures at temperatures at or above flashpoint.

	<u>HMIS*</u>	<u>NFPA*</u>
Health	2	2
Flammability	3	3
Reactivity	0	0

reference :

5191

designation :

ADDITIVE

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4 - FIRST AID MEASURES

Inhalation: Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Have the person rest. Call for prompt medical attention.

Skin contact: Rinse with large amounts of water, use soap if available. Remove grossly contaminated clothing, including shoes, and launder before reuse. Get medical attention if irritation persists.

Eye contact: Immediately flush out eyes with large amounts of water for at least 15 minutes. Get medical attention rapidly.

Ingestion: If swallowed, do not induce vomiting. Have the person rest. Get medical attention rapidly.

5 - FIRE-FIGHTING MEASURES

Use water spray to cool fire-exposed surfaces and to protect personnel. Stop leak if possible. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect those attempting to stop a leak. Either allow fire to burn under controlled conditions or extinguish with foam or dry chemical. Try to cover liquid spills with foam.

Do not use a water extinguisher when printers are on fire.

6 - ACCIDENTAL RELEASE MEASURES

Eliminate sources of ignition. Warn occupants of downwind areas of fire and explosion hazard. Prevent liquid from entering sewers, waterways, or low areas. Keep public away. Shut off source if possible to do so without hazard. Advise authorities if product has entered a waterway or sewer or has contaminated soil or vegetation. Take measures to minimize the effect on ground water. Contain spilled liquid with sand or earth. Dilute contained spill with water. Recover by pumping (use an explosion-proof or hand pump) or with a suitable absorbent. If liquid is too viscous for pumping, scrape up with shovels and buckets, and transfer to secure containers to facilitate its disposal and recycling. In the event of uncontrolled release of this material the user should determine if the release is reportable under applicable laws and regulations.

Disposal of recovered material must be made according to local regulations.

7 - HANDLING AND STORAGE

HANDLING

Handle containers with care. Open slowly in order to control possible pressure release. Do not handle or open near an open flame, source of heat or sources of ignition. Do not pressurize, cut heat or weld containers. Empty product containers may contain product residue. Do not reuse empty containers without commercial cleaning or reconditioning. Container remains hazardous when empty. Continue to observe all precautions.

STORAGE

Keep container closed. Store in a cool, well-ventilated place away from incompatible materials. Do not store near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. The floor of the premises must be incombustible, impermeable and act like a reservoir so that in case of breaking liquid will not spill outside. Keep product in its original packaging. Store below 35°C (95°F).

8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING MEASURES

The use of mechanical dilution ventilation is recommended whenever this product is used in a confined space, is heated above the ambient temperature or otherwise to maintain ambient concentration below the recommended threshold exposure limits. Use explosion-proof ventilation equipment.

WORKPLACE EXPOSURE LIMITS

European Community:	Limit Value (8 hours)	Limit Value (short-term)	
Methylethylketone	200ppm (600mg/m ³)	300ppm (900mg/m ³)	
USA:	OSHA*	ACGIH*	ACGIH*
	PEL-TWA*	TLV-TWA*	TLV-STEL*
Methylethylketone	200ppm (590mg/m ³)	200ppm (590mg/m ³)	300ppm (885mg/m ³)

PERSONAL PROTECTION

Handle in the presence of adequate ventilation

Respiratory protection:

Where concentrations in air may exceed the limits given in this section, using a half-face filter mask is recommended to protect from overexposure by inhalation.

Protective clothing:

When handling this product, wearing chemical resistant (butyl rubber) gloves is recommended. Gloves should be replaced immediately if signs of degradation are observed.

Eye protection:

When handling this product, wearing splash-resistant goggles is recommended. An eye wash should be available.

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9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state and color	pink liquid
Odor	ketone
pH (at 20°C (68°F))	not applicable
Melting point	< -85 °C (-121°F)
Boiling point	> 75°C (167°F)
Flashpoint (in a closed cup)	about -9°C (16 °F)
Self-ignition temperature	> 500 °C (932 °F)
Explosive limits (volume % in air)	1.8 - 11.5
Vapor pressure (at 25 °C ; 77 °F)	13.3 kPa at 25°C (77°F) (Methylethylketone)
vapor density (/ air)	> 1
Density (at 20°C (68°F))	0.80 - 0.81
Water solubility	partial
n-octanol / water partition coefficient (log P(o/w))	0.26 (Methylketone)
Note: The flashpoint of the preparation has not been determined. The flashpoint indicated is the one of the solvent with the lowest value.	

10 - STABILITY AND REACTIVITY

Stability	stable
Hazardous polymerization	no
Materials and conditions to avoid (incompatibility)	strong oxidizing agents
Hazards decomposition products	none

11 - TOXICOLOGICAL INFORMATION

ACUTE

Inhalation :

Vapor concentrations above recommended exposure levels may be irritating to the eyes and the respiratory tract, may cause headaches and dizziness, could be anesthetic and may have other central nervous system effects.

LC₅₀(rat, 4 hours) > 9000ppm (Methylethylketone)

Skin contact:

Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis

LD₅₀(rabbit) = 1.3g/kg (Methylethylketone)

Eye contact:

Irritating and will injure eye tissue if not removed promptly.

Ingestion :

Small amounts of liquid aspirated into the respiratory system during ingestion or vomiting may cause bronchopneumonia or pulmonary edema.

LD₅₀(rat) = 3000mg/kg (Methylethylketone)

CHRONIC:

There is no evidence that exposure to Methylethylketone alone causes progressive or irreversible neurotoxic effects.

However, simultaneous over-exposure to Methylethylketone and to n-Hexane can potentiate the known irreversible effects of n-hexane.

OTHERS

Avoid exposure for pregnant women.

12 - ECOLOGICAL INFORMATION

Methylethylketone

WGK:	1
Mobility:	This substance is relatively volatile.
Degradability:	Readily biodegradable
Ecotoxicity:	LC ₅₀ (fishes, 96 hours) = 4600mg/l EC ₅₀ (daphnia, 48 hours) = 7060mg/l EC ₅₀ (bacteria, 16 hours) = 1150mg/l

S H - 5 1 9 1 D

Material Safety Data Sheet

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13 - DISPOSAL CONSIDERATIONS

Empty containers should be taken for recycling, recovery or disposal through a suitably qualified or licensed contractor. This product is not suitable for disposal by either landfill or via municipal sewers, drains, natural streams or rivers. This product can be burned directly in appropriate equipment. Care should be taken to ensure compliance with national and local regulations.

14 - TRANSPORT INFORMATION

Land: road/railway (RTMDR/F, ADR/RID)

Name of substance: methyl ethyl ketone

Substance identification number	Hazard identification number	Label(s)	Class	Item number and letter
1193	33	3	3	3* (b)

Partial exemption: 300 liters

Total exemption: 3 Liters per inner container and 12 Liters per package

Sea (IMDG)

Proper shipping name: methyl ethyl ketone

UN N°	Class	Subsidiary risks	Packing group	Special provisions	Limited quantities	Packing / IBC*		Emergency schedule No	Stowage and segregation
						Instructions	Provisions		
1193	3		II		1L	P001 / IBC02	- / -	3-06	Category B

Marine pollutant: no

Air (OACI/IATA)

Proper shipping name: methyl ethyl ketone

UN N°	Class	Subsidiary risks	Hazard label(s)	Packing group	Passenger & cargo aircraft		Cargo aircraft only		Special provisions	ERG* code
					Packing instructions	Maxi net quantity/ package	Packing instructions	Maxi net quantity/ package		
1193	3		3	II	Y305 / 305	1L / 5L	307	60L		3L

15 - REGULATORY INFORMATION

CLASSIFICATION AND LABELLING ACCORDING TO EEC DIRECTIVES

Governing Directive: 67/548/EEC (dangerous substances) and Directive 1999/45/EC* (dangerous preparations)

Label name: 5191

Symbols and indications of danger:



F+ Highly flammable



Xi Irritant

NATURE OF SPECIAL RISK

R11 Highly flammable

R36 Irritating to eyes

R66 Repeated exposure may cause skin dryness or cracking

R67 Vapors may cause drowsiness and dizziness

SAFETY ADVICE

S9 Keep container in a well ventilated place

S16 Keep away from sources of ignition - No smoking

S H - 5 1 9 1 D

Material Safety Data Sheet

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In the USA, the hazardous components of this product are mentioned in the following lists

- 5B Clean Air Act Section 111 Volatile Organic Compound
- 5D Clean Air Act Section 112 Statutory Air Pollutants (1990 Amendments)
- 6 National Institute for Occupational Safety and Health (NIOSH) Recommendation Substances
- 7A Resource Conservation and Recovery Act (RCRA) Hazardous Substances
- 7B Resource Conservation and Recovery Act (RCRA) Hazardous Constituents for Ground Water Monitoring
- 8A Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances
- 8C Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 Toxic Chemicals
- 8D Superfund Amendments and Reauthorization Act (SARA) Title III Section 110 Priority List of CERCLA Hazardous Substances
- 9A Occupational Safety and Health Administration (OSHA) Air Contaminants (Tables Z1, Z2 and Z3)
- 9D American Council of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value Chemicals
- 9H Occupational Safety and Health Administration (OSHA) Table Z-1-A [revoked]
- 11B Drug Enforcement Agency (DEA) Essential Chemicals
- 13A Department of Transportation (DOT) Hazardous Materials
- 13B Department of Transportation (DOT) Hazardous Substances and Radionuclides
- MA1 Massachusetts Substance List
- NJ1 New Jersey Right to Know Hazardous Substance List
- PA1E Pennsylvania Hazardous Substances List - Environmental hazard

In Canada, the hazardous components of this product are mentioned in the following lists :

- CN1 Canadian Workplace Hazardous Materials Information System (WHMIS) Ingredient Disclosure List - ingredient must be disclosed at a concentration of 1%.

The user of the product must refer to official regulations concerning his obligations

16 - OTHER INFORMATION

ABBREVIATIONS

EEC	European Economic Community
ISO	International Organization for Standardization
INRS	Institut national de recherche et de securite
CAS N°	Chemical Abstracts Service Number
HMIS	Hazardous Material Information System
NFPA	National Fire Protection Association
PEL	Permissible Exposure Level
TWA	Time Weighted Average
TLV	Threshold Limit Value
STEL	Short Term Exposure Limit
IBC	Intermediate bulk container
ERG	Emergency Response Drill
IMDG	International Maritime Dangerous Goods
IATA	International Air Transportation Association
EINECS	European inventory of existing commercial chemical substances
LC ₅₀	Lethal concentration 50%
LD ₅₀	Lethal dose 50%
EC ₅₀	Effect concentration 50%
WGK	Wassergefahrdungsklasse
ADR	European Agreement concerning the international carriage of dangerous goods by road
UN	United Nations
EC	European Community
VME	Valeur limite de Moyenne d'Exposition (Average exposure limit value)

S H 5 1 9 1 D

MSDS #5

IMAGE INK JET PRINTING CORPORATION
Material Safety Data Sheet

SH-5122 E DATED: 1/17/2003
page 1/6

The attention of the user is drawn to the risks brought upon by the misuse of the product. This data sheet does not exempt the user from knowing and applying the relevant regulations. It is responsibility of the user to take all precautions necessary to the use of the product. The information contained in this publication is given in good faith, and to the best of our knowledge at the time of edition.

1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 PRODUCT IDENTIFICATION

Name : 5122
Chemical family : Ketone-based ink
Synonyms : n/a

1.2 COMPANY IDENTIFICATION

IMAGE INK JET PRINTING CORPORATION
1650 Airport Road, Suite 103
Kennesaw, Georgia 30144
Tel : (770) 421 7700
Fax : (770) 421 7702

DISTRIBUTOR IDENTIFICATION
(if other than the company)

1.3 EMERGENCY PHONE NUMBER

1-800-424-9300

2 - COMPOSITION / INFORMATION ON INGREDIENTS

Type of product: PREPARATION

<u>INGREDIENTS CONTRIBUTING TO THE HAZARD</u>	<u>CAS N°</u>	<u>EEC N°</u>	<u>%</u>	<u>RISK</u>	<u>RISK SYMBOL(S)</u>
Methylethylketone	78-93-3	606-002-00-3	65-75	Highly flammable. Irritating to eyes Repeated exposure may cause skin dryness or cracking Vapors may cause drowsiness and dizziness	R11 R36 R66 R67
Cellulose nitrate		603-037-01-3	5-15	Highly flammable	R11
Quaternary ammonium salt			<10	Causes burns Harmful if swallowed	R34 R22
Ethanol	64-17-5	603-002-00-5	<10	Highly flammable	R11
Propan-2-ol	67-63-0	603-117-00-0	<5	Highly flammable Irritating to eyes Vapors may cause drowsiness and dizziness	R11 R36 R67
Butan-1-ol	71-36-3	603-004-00-6	<2	Flammable Harmful if swallowed Irritating to respiratory system and skin Risk of serious damage to eyes Vapors may cause drowsiness and dizziness	R10 R22 R37/38 R41 R67
Methanol	67-56-1	603-001-00-	<1	Highly flammable Toxic by inhalation, in contact with skin and if swallowed Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed	R11 R23/24/25 R39/23/24/25

The ingredients not listed are not considered as dangerous substances according to directive 67/548/EEC, point 4 : and to 29 CFR 1910-1200 (USA).

reference :

5122

designation :

INK - CARMINE

S H - 5 1 2 2 E

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Material Safety Data Sheet

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3 - HAZARDS IDENTIFICATION

ADVERSE HUMAN HEALTH AND ENVIRONMENTAL EFFECTS

Irritating to skin. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.

PHYSICAL AND CHEMICAL HAZARDS

Highly flammable. Leaks of gas or spills of liquid can readily form flammable mixtures at temperatures at or above flashpoint

	HMIS*	NFPA*
Health	2	2
Flammability	3	3
Reactivity	0	0

4 - FIRST AID MEASURES

Inhalation

Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Have the person rest. Call for prompt medical attention.

Skin contact

Rinse with large amounts of water, use soap if available. Remove grossly contaminated clothing, including shoes, and launder before reuse. Get medical attention if irritation persists.

Eye contact

Immediately flush out eyes with large amounts of water for at least 15 minutes. Get medical attention rapidly.

Ingestion

If swallowed, do not induce vomiting. Have the person rest. Get medical attention rapidly.

5 - FIRE-FIGHTING MEASURES

Use water spray to cool fire-exposed surfaces and to protect personnel. Stop leak if possible. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect those attempting to stop a leak. Either allow fire to burn under controlled conditions or extinguish with foam or dry chemical. Try to cover liquid spills with foam. Do not use a water extinguisher when printers are on fire.

6 - ACCIDENTAL RELEASE MEASURES

Eliminate sources of ignition. Warn occupants of downwind areas of fire and explosion hazard. Prevent liquid from entering sewers, waterways, or low areas. Keep public away. Shut off source if possible to do so without hazard. Advise authorities if product has entered a waterway or sewer or has contaminated soil or vegetation. Take measures to minimize the effect on ground water.

Contain spilled liquid with sand or earth. Dilute contained spill with water. Recover by pumping (use an explosion-proof or hand pump) or with a suitable absorbent. If liquid is too viscous for pumping, scrape up with shovels and buckets, and transfer to secure containers to facilitate its disposal and recycling.

In the event of uncontrolled release of this material the user should determine if the release is reportable under applicable laws and regulations.

Disposal of recovered material must be made according to local regulations.

7 - HANDLING AND STORAGE

HANDLING

Handle containers with care. Open slowly in order to control possible pressure release. Do not handle or open near an open flame, source of heat or sources of ignition. Do not pressurize, cut heat or weld containers. Empty product containers may contain product residue. Do not reuse empty containers without commercial cleaning or reconditioning. Container remains hazardous when empty. Continue to observe all precautions.

STORAGE

Keep container closed. Store in a cool, well-ventilated place away from incompatible materials. Do not store near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. The floor or the premises must be incombustible, impermeable and act like a reservoir so that in case of breaking liquid will not spill outside. Keep product in its original packaging. Store below 35°C (95°F).

S H - 5 1 2 2 E

8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING MEASURES

The use of mechanical dilution ventilation is recommended whenever this product is used in a confined space, is heated above the ambient temperature or otherwise to maintain ambient concentration below the recommended threshold exposure limits. Use explosion-proof ventilation equipment

WORKPLACE EXPOSURE LIMITS

European Community:	Limit Value (8 hours)	Limit Value (short-term)	
Methylethylketone	200ppm (600mg/m ³)	300ppm (900mg/m ³)	
Ethanol	1000ppm (1900mg/m ³)	5000ppm (9500mg/m ³)	
Propan-2-ol		400ppm (980mg/m ³)	
Butan-1-ol		50ppm (150mg/m ³)	
Methanol	200ppm (260mg/m ³)	1000ppm (1300mg/m ³)	
USA:	OSHA*	ACGIH*	ACGIH*
	PEL-TWA*	TLV-TWA*	TLV-STEL*
Methylethylketone	200ppm (590mg/m ³)	200ppm (590mg/m ³)	300ppm (885mg/m ³)
Ethanol	1000ppm (1880mg/m ³)	1000ppm (1880mg/m ³)	
Propan-2-ol	400ppm (985mg/m ³)	400ppm (985mg/m ³)	500ppm (1230mg/m ³)
Butan-1-ol			25ppm (76mg/m ³)
Methanol	200ppm (262mg/m ³)	200ppm (262mg/m ³)	250ppm (328mg/m ³)

PERSONAL PROTECTION

Handle in the presence of adequate ventilation.

Respiratory protection :

Where concentrations in air may exceed the limits given in this section, using a half-face filter mask is recommended to protect from overexposure by inhalation.

Protective clothing :

When handling this product, wearing is chemical resistant (butyl rubber) gloves is recommended. Gloves should be replaced immediately if signs of degradation are observed

Eye protection :

When handling this product, wearing splash-resistant goggles is recommended. An eye wash should be available.

9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state and color	red liquid
Odor	ketone
pH (at 20°C (68°F))	not applicable
Melting point	< -85 °C (-121°F)
Boiling point	> 60°C (140°F)
Flashpoint (in a closed cup)	about -9°C (16 °F)
Self-ignition temperature	> 300 °C (572 °F)
Explosive limits (volume % in air)	1.4 - 36.5
Vapor pressure (at 25 °C ; 77 °F)	13.3 kPa at 25°C (77°F) (Methylethylketone)
Vapor density (/ air)	> 1
Density (at 20°C (68°F))	0.86 - 0.87
Water solubility	partial
n-octanol / water partition coefficient (log P(o/w))	0.26 (Methylketone)

Note: The flashpoint of the preparation has not been determined. The flashpoint indicated is the one of the solvent with the lowest value.

10 - STABILITY AND REACTIVITY

Stability	stable
Hazardous polymerization	no
Materials and conditions to avoid (incompatibility)	strong oxidizing agents
Hazards decomposition products	none

S H - 5 1 2 2 E

Material Safety Data Sheet

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11 - TOXICOLOGICAL INFORMATION

ACUTE
Inhalation :

Vapor concentrations above recommended exposure levels may be irritating to the eyes and the respiratory tract. may cause headaches and dizziness. could be anesthetic and may have other central nervous system effects.

LC₅₀(rat, 4 hours) > 9000ppm (Methylethylketone)

Skin contact:

Irritant. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

LD₅₀(rabbit) = 13g/kg (Methylethylketone)

Eye contact:

irritating and will injure eye tissue if not removed promptly.

Ingestion :

Small amounts of liquid aspirated into the respiratory system during ingestion or vomiting may cause bronchopneumonia or pulmonary edema.

LD₅₀(rat) = 3000mg/kg (Methylethylketone)

CHRONIC

There is no evidence that exposure to Methylethylketone alone causes progressive or irreversible neurotoxic effects.

However, simultaneous over-exposure to Methylethylketone and to n-Hexane can potentiate the known irreversible effects of n-hexane

OTHERS

Avoid exposure for pregnant women.

12 - ECOLOGICAL INFORMATION

Methylethylketone

WGK: 1
Mobility: This substance is relatively volatile
Degradability: Readily biodegradable.
Ecotoxicity: LC₅₀(fishes, 96 hours) = 4600mg/l
 EC₅₀(daphnia, 48 hours) = 7060mg/l
 EC₅₀(bacteria, 16 hours) = 1150mg/l

Ethanol

WGK: 0

Propan-2-ol

WGK: 1

Butan-1-ol

WGK: 1

Methanol

WGK: 1

13 - DISPOSAL CONSIDERATIONS

Empty containers should be taken for recycling, recovery or disposal through a suitably qualified or licensed contractor. This product is not suitable for disposal by either landfill or via municipal sewers, drains, natural streams or rivers. This product can be burned directly in appropriate equipment.

Care should be taken to ensure compliance with national and local regulations.

14 - TRANSPORT INFORMATION

Land: road/railway (RTMDR/F, ADR/RID)

Name of substance: printing ink

Substance identification number	Hazard identification number	Label(s)	Class	Item number and letter
1210	33	3	3	5° (b)

Partial exemption: 300 liters

Total exemption: 5 Liters per inner container and 20 Liters per package

Sea (IMDG)

Proper shipping name: printing ink

UN N°	Class	Subsidiary risk(s)	Packing group	Special provisions	Limited quantities	Packing / IBC*		Emergency schedule No.	Stowage and segregation
						Instructions	Provisions		
1210	3		II	163	1L	P001 / IBC02	PP1 / -	3-05	Category B

Marine pollutant: no

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Material Safety Data Sheet

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Air (OACI/IATA)					Proper shipping name: printing ink					
UN N°	Class	Subsidiary risk(s)	Hazard label(s)	Packing group	Passenger & cargo aircraft		Cargo aircraft only		Special provisions	ERG* code
					Packing instructions	Maxi net quantity/ package	Packing instructions	Maxi net quantity/ package		
1210	3		3	II	Y305 / 305	1L / 5L	307	60L	A72	3L

15 - REGULATORY INFORMATION

CLASSIFICATION AND LABELLING ACCORDING TO EEC DIRECTIVES

Governing Directive: 67/548/EEC (dangerous substances.) and Directive 1999/45/EC* (dangerous preparations)

Label name: 5122

Symbols and indications of danger:



F+ Highly flammable

Xi Irritant

NATURE OF SPECIAL RISK

- R11 Highly flammable
- R36/38 Irritating to eyes and skin
- R66 Repeated exposure may cause skin dryness or cracking
- R67 Vapors may cause drowsiness and dizziness

SAFETY ADVICE

- S9 Keep container in a well ventilated place
- S16 Keep away from sources of ignition - No smoking

In the USA, the hazardous components of this product are mentioned in the following lists

- 1A Toxic Substance Control Act (TSCA) Section 4(a) Final Test Rule and Consent Agreement Substances
- 1M(b) Toxic Substance Control Act (TSCA) Section 12(b) One-Time Export Notification Substances
- 2 Toxic Substance Control Act (TSCA) Chemical Hazard Information Profile (CHIP) Substances
- 5B Clean Air Act Section 111 Volatile Organic Compound
- 5D Clean Air Act Section 112 Statutory Air Pollutants (1990 Amendments)
- 6 National Institute for Occupational Safety and Health (NIOSH) Recommendation Substances
- 7A Resource Conservation and Recovery Act (RCRA) Hazardous Substances
- 7B Resource Conservation and Recovery Act (RCRA) Hazardous Constituents for Ground Water Monitoring
- 8A Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances
- 8C Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 Toxic Chemicals
- 8D Superfund Amendments and Reauthorization Act (SARA) Title III Section 110 Priority List of CERCLA Hazardous Substances
- 9A Occupational Safety and Health Administration (OSHA) Air Contaminants (Tables Z1, Z2 and Z3)
- 9D American Council of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value Chemicals
- 9F International Agency for Research on Cancer (IARC) Unclassifiable and Probably Noncarcinogenic Substances and Exposures (Group 3 or 4)
- 9G International Agency for Research on Cancer (IARC) Substances Not Assigned an Overall Evaluation
- 9H Occupational Safety and Health Administration (OSHA) Table Z-1-A [revoked]
- 11B Drug Enforcement Agency (DEA) Essential Chemicals
- 12 National Toxicology Program (NTP) Testing Program Substances
- 13A Department of Transportation (DOT) Hazardous Materials
- 13B Department of Transportation (DOT) Hazardous Substances and Radionuclides
- MA1 Massachusetts Substance List
- NJ1 New Jersey Right to Know Hazardous Substance List
- PA1 Pennsylvania Hazardous Substances List

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Material Safety Data Sheet

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In Canada, the hazardous components of this product are mentioned in the following lists

- CN1 Canadian Workplace Hazardous Materials Information System (WHMIS) Ingredient Disclosure List – Ingredient must be disclosed at a concentration of 1%.
- CN2 Canadian Workplace Hazardous Materials Information System (WHMIS) Ingredient Disclosure List – Ingredient must be disclosed at a concentration of 0.1%.

The user of the product must refer to official regulations concerning his obligations.

16 - OTHER INFORMATION

ABBREVIATIONS

EEC:	European Economic Community
ISO:	International Organization for Standardization
INRS:	Institut national de recherche et de sécurité
CAS N°:	Chemical Abstracts Service Number
HMIS:	Hazardous Material Information System
NFPA:	National Fire Protection Association
PEL:	Permissible Exposure Level
TWA:	Time Weighted Average
TLV:	Threshold Limit Value
STEL:	Short Term Exposure Limit
IBC:	Intermediate bulk container
ERG:	Emergency Response Drill
IMDG:	International Maritime Dangerous Goods
IATA:	International Air Transportation Association
EINECS:	European inventory of existing commercial chemical substances
LC ₅₀ :	Lethal concentration 50%
LD ₅₀ :	Lethal dose 50%
EC ₅₀ :	Effect concentration 50%
WGK:	Wassergefährdungsklasse
ADR:	European Agreement concerning the international carriage of dangerous goods by road
UN:	United Nations
EC:	European Community
VME:	Valeur limite de Moyenne d'Exposition (Average exposure limit value)

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MSDS #6

MATERIAL SAFETY DATA SHEET

MSDS ID#: 100005

Date Prepared: October 19, 1995

Revision: February 10, 2003

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **M-149 OFFSET INK** Product Code: 10006
Colors Covered: Black; Blue; Green; White; UV Readable; Standard Grey; NL Red; NL Yellow; NL Orange; NL Brown; FR Black; Silver; Purple; Process Blue; Spectra Blue; NL Red/Orange; Deep Red; Copper; Black Low Odor; SP Orange, PMS 9U/10U Grey; SP Green
Supplier Name: Matthews International Corporation Address: 101 Fairview Avenue
City: Pittsburgh State/Zip: Pennsylvania, USA, 15238
Phone: (412)665-2500 Fax: (412)828-4545 24 Hour Emergency Phone: (412)456-7499

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Components</u>	[] Substance		[X] Mixture			
	<u>Percent</u>	<u>CAS No.</u>	<u>TLV</u>	<u>Carcinogen</u>	<u>R-Phrase</u>	<u>S-Phrases</u>
Cyclohexanone	11-17	108-94-1	25 ppm	No	R10, R20	S25
Isophorone	35-57	78-59-1	5 ppm	No	R21/22, R36/37, R40	S13, S23, S36/37/39, S46

3. HAZARDS IDENTIFICATION

Most Important Hazards: Severe eye irritant. Flammable liquid.

Main Symptoms of Overexposure: EYES- Causes severe irritation, experienced as discomfort or pain, excess blinking, marked redness and swelling of the conjunctiva. may cause chemical burns on the cornea; SKIN- Moderate skin irritation. Prolonged contact may cause chemical burns, seen as marked redness or swelling; INHALATION- May cause irritation of the respiratory tract, experienced as nasal discomfort and discharge, with chest pain, coughing, headache, nausea, vomiting, dizziness, drowsiness, disturbed vision and unconsciousness. Repeated or prolonged exposures to high concentrations may cause kidney and liver damage. INGESTION- May cause nausea, vomiting, burning sensation in mouth and throat, and abdominal discomfort.

4. FIRST AID MEASURES

Inhalation: Move to fresh air. Aid in breathing, if necessary, and get immediate medical attention.

Skin Contact: Remove contaminated clothing. Wash skin with soap and water. Get medical attention if irritation persists. Wash clothing before reuse.

Eye Contact: Immediately flush eyes with water for at least 15 minutes raising upper and lower eyelids occasionally. Get immediate medical attention.

Ingestion: DO NOT induce vomiting. Keep person warm and quiet and get medical attention. Aspiration of the material into the lungs due to vomiting can cause chemical pneumonitis which can be fatal.

5. FIRE-FIGHTING MEASURES

Extinguishing media: Water spray, dry chemical, carbon dioxide, and alcohol foam.

Specific Hazards: Flammable liquid. Do not pressurize, cut, weld or expose containers to flame or other sources of ignition. Vapors are heavier than air and may travel along the ground or be moved by ventilation and be ignited by heat, pilot lights or other flames.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Eliminate all ignition sources.

Environmental precautions: Prevent runoff from entering drains, sewers or streams. May be toxic to fish

Methods of cleaning up: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Small spills should be flushed with large amounts of water. Larger spills should be collected for disposal.

7. HANDLING AND STORAGE

Handling-Precautions: May cause eye burns. Harmful if absorbed through the skin. Wash thoroughly after handling.

Safe handling Advice: Keep away from heat, sparks and flames.

Storage-Conditions: Avoid excessive heat and sources of ignition. Store in a cool, clean, well ventilated non-smoking area in a sealed grounded container.

Incompatible Products: Keep from contact with strong oxidizing agents.

MSDS ID#: 100005

Date Prepared: October 19, 1995

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Product Name: M-149 OFFSET INK

Product Code: 10006

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Engineering Measures: Good general ventilation should be used. Use local exhaust ventilation or other engineering controls to maintain airborne levels below recommended exposure limits.

Personal Protective Equipment: Eliminate all ignition sources.

Respiratory Protection: If engineering controls do not maintain concentrations below recommended exposure limits, an approved respirator should be used. Type: organic vapor.

Hand Protection: Where prolonged or repeated skin contact will occur, impervious gloves should be worn. Type: butyl

Eye Protection: Wear safety glasses with side shield or goggles.

Skin and Body Protection: Recommended Decontamination facilities: eye bath, safety shower, washing facilities.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Flashpoint: 43-50° C (110-122° F)

Density: 1.00-1.22

Vapor Density: >3.0

Boiling Point: 157° C (314° F) for Cyclohexanone

V.O.C.: 642-734

Color: Various

Autoignition temperature: N/A

Vapor Pressure: N/A

Solubility in Water: negligible

Freezing Point: N/A

Evaporation rate(Butyl Acetate=1): .38 for Cyclohexanone

Odor: Characteristic ketone odor

pH: N/A

10. STABILITY AND REACTIVITY

Stable: Yes **Conditions to avoid:** Avoid heat, sparks and open flames.

Materials to avoid: Avoid strong oxidizing agents.

Hazardous decomposition products: Carbon dioxide, carbon monoxide

11. TOXICOLOGICAL INFORMATION

Acute toxicity: Oral LD50 (rat, for Cyclohexanone)- 1.9 g/kg; Dermal LD50 (rat, for Cyclohexanone)- 3.2 g/kg

Chronic Toxicity: Isophorone, when administered by stomach tube in corn oil at dosage levels of 250 or 500 mg/kg, of body weight, was associated with a slightly increased incidence of renal and preputial tumors in male rats and of liver tumors in male mice but did not exhibit similar potential in either female rats or mice. Guinea pigs exposed to 4000 ppm of Cyclohexanone for a 6 hr period showed signs of CNS depression, lacrimation, salivation, depression of body temperature and respiratory heart rate and opacity of the cornea. Liver and kidney damage reported in monkeys and rabbits (190 ppm) and rats (1052 mg/m³) due to Cyclohexanone.

Target Organs: Eyes, skin, respiratory system, central nervous system, liver, kidneys

Sensitization: No **Specific Effects:** May aggravate an existing condition of dermatitis.

12. ECOLOGICAL INFORMATION

Possible Environmental Effects: This product may be toxic to fish. Avoid discharge to natural waters. Do not discharge into sewers or drains without the proper authority.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of in accordance with all local, state and federal regulations.

14. TRANSPORT INFORMATION

Land: (DOT)- regulated, Flammable liquid, Class 3, packaging group III, Proper Shipping Name: Printing Ink, UN 1210

Inland Watervays: (ADR)- N/A

Sea: (IMDG)- regulated, Flammable liquid, Class 3.3, packaging group III, Proper Shipping Name: Printing Ink, UN 1210

Air: (IATA)- regulated, Flammable liquid, Class 3, packaging group III, Proper Shipping Name: Printing Ink, UN 1210

15. REGULATORY INFORMATION

Hazard and Safety Information: CA Prop 65- none; PA hazardous substance list- Cyclohexanone, listed; SARA 313- none; SARA 311,312- Immediate health hazard, Delayed health hazard, Fire hazard (from Cyclohexanone and Isophorone); TSCA- all components listed; EINECS- Cyclohexanone: #203-631-1, Isophorone: #201-126-0; Cyclohexanone: R10- Flammable, R20- Harmful by inhalation, S25- Avoid contact with eyes; Isophorone: R21/22- Harmful in contact with skin and if swallowed, R36/37- Irritating to eyes and respiratory system, R40- Limited evidence of a carcinogenic effect, S13- Keep away from food, drink and animal feedingstuffs, S23- Do not breathe vapor, S36/37-39- Wear suitable protective clothing, gloves and eye/face protection, S46- If swallowed, seek medical advice immediately and show container/label

Ozone Depleting Chemicals Present: None

16. OTHER INFORMATION

Containers of this material may be hazardous when emptied, all hazard precautions given in the data sheet must be observed. The information contained herein is based upon what we believe to be reliable data. However, we make no warranty or guarantees, expressed or implied, concerning the accuracy of such information and disclaim all liability from reliance thereon. You should evaluate the information through your own sources prior to use.