9/24/04: Unit exempt from permitting
gf.

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. N188-53

August 2004

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

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 Non-Title V Air Operating Permit (Permit No. 1190030-004-AO). The construction permit is being requested so that the facility may construct and install scrap grinding equipment that will be used exclusively for the grinding of waste CPVC pipe.

CPFC currently operates its scrap grinding activities utilizing one (1) scrap grinder and one (1) scrap grinding receiver for both PVC and CPVC waste pipe. This equipment is permitted under the facility's current Air Operating Permit (Permit No. 1190030-004-AO). The addition of the new scrap grinding equipment that this application is being submitted for will allow the facility to designate a separate scrap grinder for waste PVC and waste CPVC pipe. The maximum throughput of 112,500 pounds per hour of waste CPVC pipe entering the scrap grinding process, mentioned previously in the facility's construction permit application dated February 23, 2004, will remain the same, and therefore PM emissions previously determined from the scrap grinding process will not increase at the facility.

Air emissions from the new equipment will include total particulate matter (PM/PM10) emissions from the scrap grinder receiver, which will be controlled by a polyester filter with a minimum collection efficiency of 99%. The scrap grinder receiver will be located and vent inside a facility building, thus not requiring any visible emissions testing.

SECTION 2.0
APPLICATION FOR AIR PERMIT – LONG FORM

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 124A 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)

[X] 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)348-6406

4. Owner/Authorized Representative Statement:

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.*

Signature Date: Aug. 26, 2004

* 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.

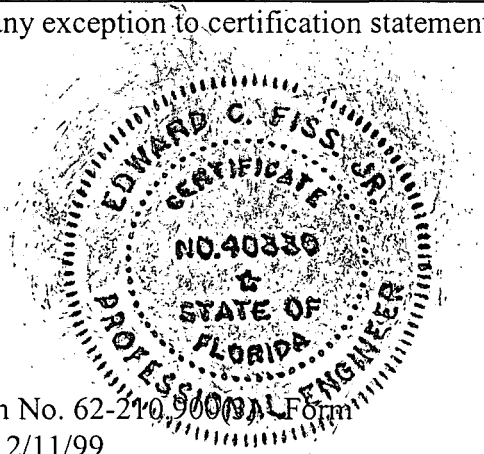
If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such 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

8/30/04
Date

(seal)

* Attach any exception to certification statement.



Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
005	One (1) Scrap Grinder Receiver	AC1F	$250.00

Application Processing Fee

Check one: [X] Attached - Amount: $ 250.00 [ ] Not Applicable

Construction/Modification Information

1. Description of Proposed Project or Alterations:

Charlotte Pipe and Foundry Company – Plastics Division has built a PVC/CPVC pipe extrusion plant in Wildwood, Florida. The facility includes PVC/CPVC compound handling systems and pipe extrusion equipment. The primary air pollutant from this facility is particulate matter (PM) from the PVC/CPVC raw material handling equipment. Fugitive VOC emissions from the pipe extrusion process are minimal. The facility plans to construct and install scrap grinding equipment that will be used exclusively for the grinding of waste CPVC pipe. The facility currently operates its scrap grinding activities utilizing one (1) scrap grinder and one (1) scrap grinder receiver for both PVC and CPVC waste pipe. The addition of the new scrap grinding equipment will allow the facility to designate a separate scrap grinder for waste PVC pipe and waste CPVC pipe. The new scrap grinding equipment will be added to Emission Unit Number 005 from the facility's current air operating permit (Permit No. 1190030-004-AO).

2. Projected or Actual Date of Commencement of Construction: As soon as permit is issued.

3. Projected Date of Completion of Construction: Approximately one week from commencement of construction.

Application Comment

NA

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)348-6406	

Facility Regulatory Classifications

Check all that apply:

1. [ ] Small Business Stationary Source?	[X] Unknown
2. [ ] Synthetic Non-Title V Source?	
3. [ ] Synthetic Minor Source of Pollutants Other than HAPs?	
4. [ ] Synthetic Minor Source of HAPs?	
5. [ ] One or More Emissions Units Subject to NSPS?	
6. [ ] One or More Emission Units Subject to NESHAP Recordkeeping or Reporting?	
7. Facility Regulatory Classifications Comment (limit to 200 characters):	
This facility is a minor source of particulate matter.	

Rule Applicability Analysis

Florida Administrative Code.

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap lb/hour	tons/year	4. Basis for Emissions Cap	5. Pollutant Comment
PM	B	17.2	4.5	Rule and Other	Requested hourly emission cap is based on Rule 62-296-320 and the facility's pneumatic conveyor's max rate of 12.5 tons/hr (raw material). The annual emission cap is requested so that annual particulate emissions will be below five (5) tons per year.

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location: [X] Attached, Document ID: Figure #1 [ ] 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: Figure #2 [ ] 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: NA

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)

[ ] 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).

[X] 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.

[ ] 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):
One (1) scrap grinder receiver associated with one (1) scrap grinder.

3. Emissions Unit Identification Number:
ID: 005
[ ] No ID
[ ] ID Unknown

4. Emissions Unit Status Code: C	5. Initial Startup Date: NA	6. Emissions Unit Major Group SIC Code: 30

7. Emissions Unit Comment: (Limit to 500 Characters)

This equipment is an addition to the Emission Unit Number 005 in the facility's current Air Operating Permit (Permit No. 1190030-004-AO). Please see Emission Source ID #38 (ES-38) on the attached Table #1. The primary air pollutant from this emission unit is particulate matter. This emission unit vents inside a facility building.

Emissions Unit Control Equipment

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

The air pollution control device for this unit is a circular polyester filter screen with approximately 240.5 square feet of filter area. According to the vendor of the equipment, the filter will collect 100% of particulate one (1) micron and greater in size. Because the filter will be collecting particulate originating from CPVC pipe regrind, which will have particle size diameters greater than 1 micron, it is safe to say that most if not all of the particulate will be collected by the filter. Taking a conservative approach, a control efficiency of 99% for the filter screen will be used.

2. Control Device or Method Code(s): 018

Emissions Unit Details

1. Package Unit: NA
   Manufacturer: NA Model Number: NA
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: 112,500 lbs/yr
4. Maximum Production Rate: NA
5. Requested Maximum Operating Schedule:
   24 hours/day 7 days/week
   52 weeks/year 8,760 hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):

The maximum throughput rate of 112,500 lbs/yr corresponds to the scrap grinder receiver that is planned to be installed. The maximum throughput rate is the same as that mentioned previously in the facility's construction permit application dated February 23, 2004, and therefore PM emissions previously determined from the scrap grinding process will not increase at the facility.

B. EMISSION POINT (STACK/VENT) INFORMATION

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? EP-26	2. Emission Point Type Code: 1

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):
This emission point vents inside a facility building.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: NA

5. Discharge Type Code: See the attached Table #1	6. Stack Height: See the attached Table #1	7. Exit Diameter: See the attached Table #1
8. Exit Temperature: See the attached Table #1	9. Actual Volumetric Flow See the attached Table #1	10. Water Vapor: NA %

11. Maximum Dry Standard Flow Rate: NA dscfm	12. Nonstack Emission Point Height: See the attached Table #1

13. Emission Point UTM Coordinates: NA		
Zone:	East (km):	North (km):

14. Emission Point Comment (limit to 200 characters):
This emission point vents through the motor housing of the scrap grinder receiver.

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):		

Emissions Unit Information Section 1 of 1

Pollutant Detail Information Page 1 of 1

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

Potential Emissions

1. Pollutant Emitted: PM	2. Pollutant Regulatory Code: EL	
3. Primary Control Device Code: 018	4. Secondary Control Device Code: NA	5. Total Percent Efficiency of Control: 99%
6. Potential Emissions: 17.2 lb/hour 4.5 tons/year		7. Synthetically Limited? [ ] NA
8. Emission Factor: See Attachment A Reference:		8. Emissions Method Code: 4
10. Calculation of Emissions (limit to 600 characters): See Attachment A		
11. Pollutant Potential Emissions Comment (limit to 200 characters): See Attachment A		

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: Rule and Other (Maximum Capacity)	2. Future Effective Date of Allowable Emissions: NA
2. Requested Allowable Emissions and Units: See Field 4.	4. Equivalent Allowable Emissions: 17.2 lb/hour 4.5 tons/year
5. Method of Compliance (limit to 60 characters): Waste CPVC pipe throughput and filter control efficiency.	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Requested hourly emission cap is based on Rule 62-296-320 and the facility's pneumatic conveyor's max rate of 12.5 tons per hour (raw material). The annual emission cap is requested so that annual particulate emissions at the facility will be below five (5) tons per year.	

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: [ ] Rule [ ] Other
3. Requested Allowable Opacity: NA Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: NA	
6. Visible Emissions Comment (limit to 200 characters): The emission unit vents inside a facility building and is therefore exempt from visible emissions compliance testing.	

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: Figure #2 [ ] Not Applicable [ ] Waiver Requested
2. Fuel Analysis or Specification [ ] Attached, Document ID:_____ [X] Not Applicable [ ] Waiver Requested
3. Detailed Description of Control Equipment [X] Attached, Document ID: Table #1 [ ] 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 [X] Attached, Document ID: Attachment C [ ] 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

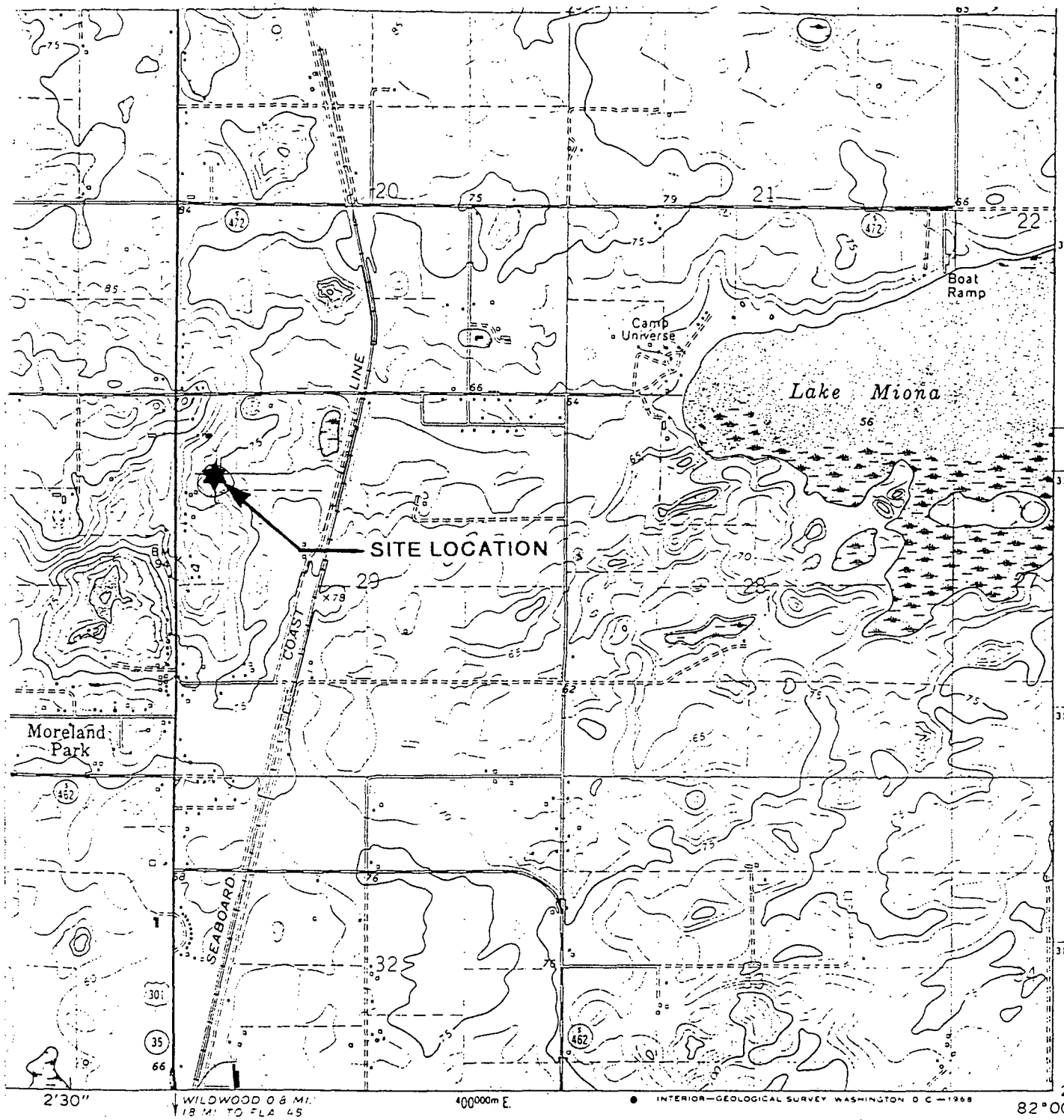
TABLES

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	6 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	6 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	2 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	2 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	2 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	2 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	2 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	2 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	2 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	6 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	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	D
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	6 cu. Ft.	EP-25	Bagfilter	Universal Dynamics	99	44.4 sq. Ft.	Ground Level	4 inches	Ambient	420 CFM	H

**Highlighted information represents the new pieces of equipment covered in this permit application.

FIGURES



SCALE: 1:24000

1 1/2 0 1 MILE

1000 0 2000 4000 6000 8000 FEET

N

CHARLOTTE PIPE & FOUNDRY
WILDWOOD, FLORIDA

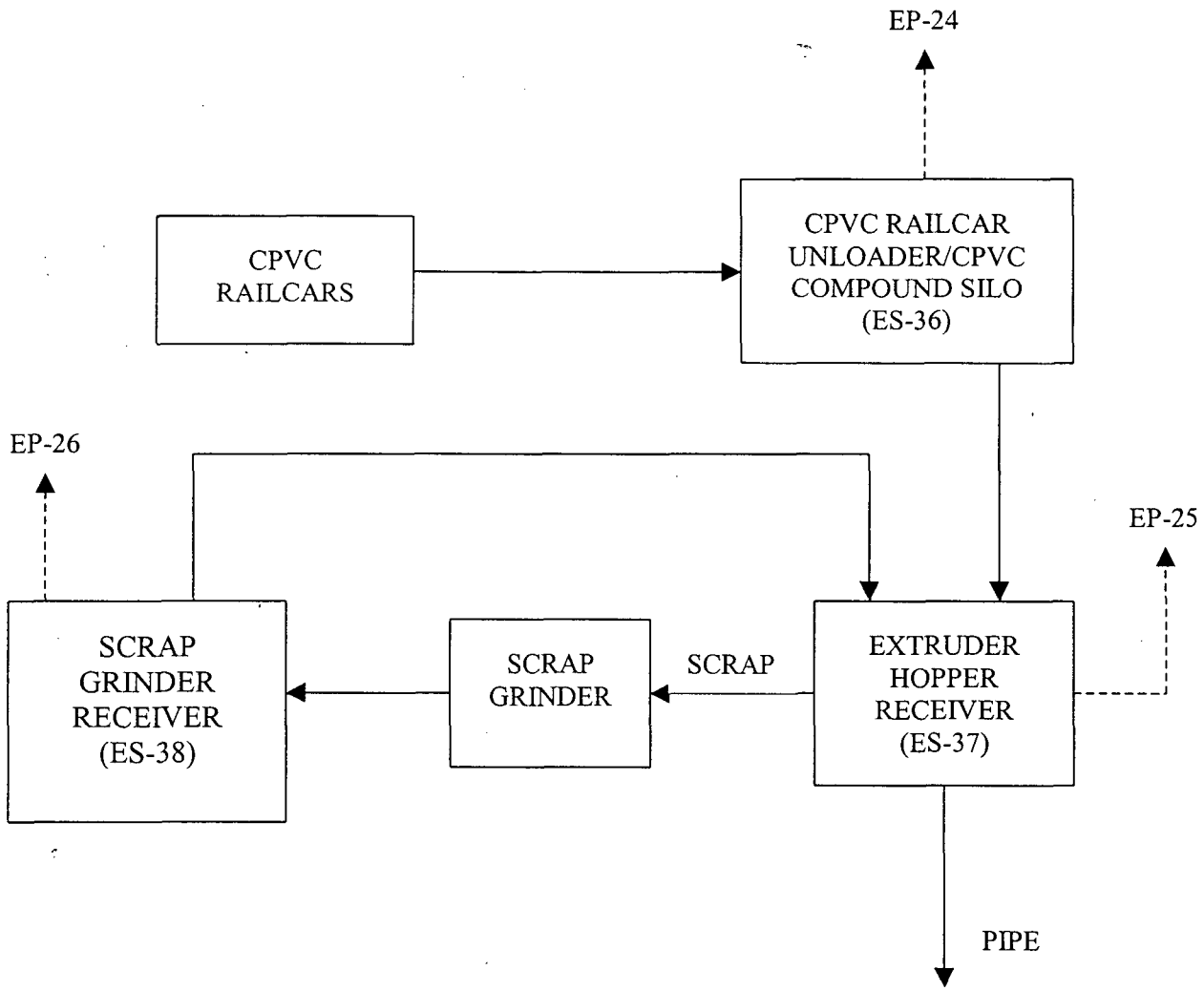
REFERENCE:
BASE MAP TAKEN FROM USGS QUADRANGLE MAP:
OXFORD, FLORIDA. DATED 1966.

FIGURE—1
SITE LOCATION MAP

AWARE ENVIRONMENTAL INC

AEI PROJECT No. N188-53

Figure 2 - Process Schematic Diagram (CPVC)



ATTACHMENT A

EMISSION CALCULATIONS AND EMISSION FACTOR SELECTION

ATTACHMENT A
EMISSION CALCULATIONS AND EMISSION FACTOR SELECTION
Charlotte Pipe & Foundry Company
Wildwood, Florida

TABLE A-1 summarizes emissions from the new scrap grinding equipment planned on being installed at the Charlotte Pipe and Foundry Company (CPFC) – Wildwood Facility. Emissions are calculated based on the scrap grinding process described in **Section 1 – Introduction**. Emission factor selection is discussed below.

CPFC's CPVC material recycling activities involve the grinding of waste CPVC pipe back into a useable form. Taking a conservative approach, total particulate matter (PM/PM10) from CPFC recycling activities were modeled using uncontrolled particulate emissions factors for the crushing and screening of sodium carbonate found in Table 8.12-3 of the USEPA's AP-42, *Compilation of Air Pollutant Emission Factors*. The emission factor of 3.5 lb/ton was used to estimate the uncontrolled PM/PM10 emissions from CPFC's recycling activities.

Supporting documentation for the emission factors used to estimate CPFC's emissions are attached for reference.

TABLE A-1
TOTAL PARTICULATE MATTER EMISSIONS SUMMARY
CPVC WASTE PIPE GRINDING
Charlotte Pipe & Foundry - Plastics Division
Wildwood, Florida

TOTAL PARTICULATE MATTER (PM/PM10) EMISSIONS ESTIMATE

PROCESS	HOURS OF OPERATION ACTUAL (hr/yr)	HOURS OF OPERATION POTENTIAL (hr/yr)	MATERIAL THROUGHPUT POTENTIAL (lbs/yr)	CONTROL DEVICE	CONTROL EFFICIENCY	ESTIMATED PM UNCONTROLLED EMISSION FACTOR (lb/ton)	EMISSION ESTIMATES FOR PM BEFORE CONTROL POTENTIAL (ton/yr)	EMISSION ESTIMATES FOR PM AFTER CONTROL POTENTIAL (ton/yr)
CPVC - Pipe Extrusion								
Recycle Waste - Ground	8472	8760	112,500.00	Polyester Filter	99.00%	3.5	0.098	0.001
TOTAL							**0.10**	**0.001**

8.12 Sodium Carbonate

8.12.1 General[1-3]

Sodium carbonate (Na_2CO_3), commonly referred to as soda ash, is one of the largest-volume mineral products in the U. S., with 1991 production of over 9 million megagrams (Mg) (10.2 million tons). Over 85 percent of this soda ash originates in Wyoming, with the remainder coming from Searles Valley, California. Soda ash is used mostly in the production of glass, chemicals, soaps, and detergents, and by consumers. Demand depends to great extent upon the price of, and environmental issues surrounding, caustic soda, which is interchangeable with soda ash in many uses and is widely coproduced with chlorine (see Section 8.11, "Chlor-Alkali").

8.12.2 Process Description[4-7]

Soda ash may be manufactured synthetically or from naturally occurring raw materials such as ore. Only 1 U. S. facility recovers small quantities of Na_2CO_3 synthetically as a byproduct of cresylic acid production. Other synthetic processes include the Solvay process, which involves saturation of brine with ammonia (NH_3) and carbon dioxide (CO_2) gas, and the Japanese ammonium chloride (NH_4Cl) coproduction process. Both of these synthetic processes generate ammonia emissions. Natural processes include the calcination of sodium bicarbonate ($NaHCO_3$), or nahcolite, a naturally occurring ore found in vast quantities in Colorado.

The 2 processes currently used to produce natural soda ash differ only in the recovery stage in primary treatment of the raw material used. The raw material for Wyoming soda ash is mined trona ore, while California soda ash comes from sodium carbonate-rich brine extracted from Searles Lake.

There are 4 distinct methods used to mine the Wyoming trona ore: (1) solution mining, (2) room-and-pillar, (3) longwall, and (4) shortwall. In solution mining, dilute sodium hydroxide (NaOH), commonly called caustic soda, is injected into the trona to dissolve it. This solution is treated with CO_2 gas in carbonation towers to convert the Na_2CO_3 in solution to $NaHCO_3$, which precipitates and is filtered out. The crystals are again dissolved in water, precipitated with carbon dioxide, and filtered. The product is calcined to produce dense soda ash. Brine extracted from below Searles Lake in California is treated similarly.

Blasting is used in the room-and-pillar, longwall, and shortwall methods. The conventional blasting agent is prilled ammonium nitrate (NH_4NO_3) and fuel oil, or ANFO (see Section 13.3, "Explosives Detonation"). Beneficiation is accomplished with either of 2 methods, called the sesquicarbonate and the monohydrate processes. In the sesquicarbonate process, shown schematically in Figure 8.12-1, trona ore is first dissolved in water (H_2O) and then treated as brine. This liquid is filtered to remove insoluble impurities before the sodium sesquicarbonate ($Na_2CO_3 \cdot NaHCO_3 \cdot 2H_2O$) is precipitated out using vacuum crystallizers. The result is centrifuged to remove remaining water, and can either be sold as a finished product or further calcined to yield soda ash of light to intermediate density. In the monohydrate process, shown schematically in Figure 8.12-2, crushed trona is calcined in a rotary kiln, yielding dense soda ash and carbon dioxide and water as byproducts. The calcined material is combined with water to allow settling out or filtering of impurities such as shale, and is then concentrated by triple-effect evaporators and/or mechanical vapor recompression crystallizers to precipitate sodium carbonate monohydrate ($Na_2CO_3 \cdot H_2O$). Impurities

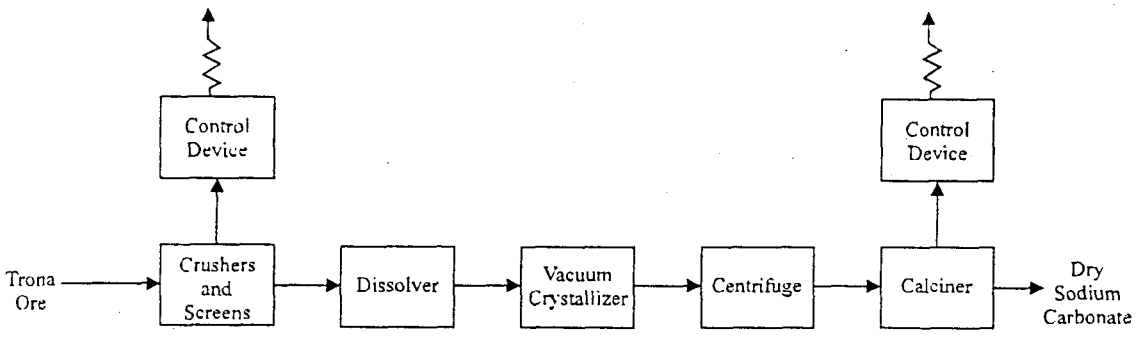


Figure 8.12-1. Flow diagram for sesquicarbonate sodium carbonate processing.

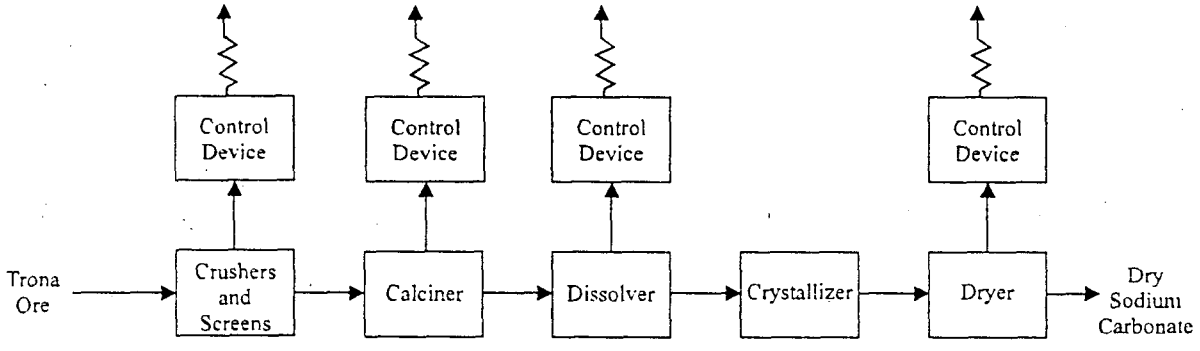


Figure 8.12-2. Flow diagram for monohydrate sodium carbonate processing.

such as sodium chloride (NaCl) and sodium sulfate (Na_2SO_4) remain in solution. The crystals and liquor are centrifuged, and the recovered crystals are calcined again to remove remaining water. The product must then be cooled, screened, and possibly bagged, before shipping.

8.12.3 Emissions And Controls

The principal air emissions from the sodium carbonate production methods now used in the U. S. are particulate emissions from ore calciners; soda ash coolers and dryers; ore crushing, screening, and transporting operations; and product handling and shipping operations. Emissions of products of combustion, such as carbon monoxide, nitrogen oxides, sulfur dioxide, and carbon dioxide, occur from direct-fired process heating units such as ore calcining kilns and soda ash dryers. With the exception of carbon dioxide, which is suspected of contributing to global climate change, insufficient data are available to quantify these emissions with a reasonable level of confidence, but similar processes are addressed in various sections of Chapter 11 of AP-42, "Mineral Products Industry". Controlled emissions of filterable and total particulate matter from individual processes and process components are given in Tables 8.12-1 and 8.12-2. Uncontrolled emissions from these same processes are given in Table 8.12-3. No data quantifying emissions of organic condensable particulate matter from sodium carbonate manufacturing processes are available, but this portion of

Table 8.12-1 (Metric Units). CONTROLLED EMISSION FACTORS FOR PARTICULATE MATTER FROM SODIUM CARBONATE PRODUCTION

Process	Filterable Emissions[a]		Total Emissions[b]	
	kg/Mg Of Product	EMISSION FACTOR RATING	kg/Mg Of Product	EMISSION FACTOR RATING
Ore mining[c] (SCC 3-01-023-99)	0.0016	C	ND	NA
Ore crushing and screening[c] (SCC 3-01-023-99)	0.0010	D	0.0018	C
Ore transfer[c] (SCC 3-01-023-99)	0.00008	E	0.0001	E
Monohydrate process: rotary ore calciner (SCC 3-01-023-04/05)	0.091	A	0.12	B
Sesquicarbonate process: rotary calciner (SCC 3-01-023-99)	0.36	B	0.36	C
Sesquicarbonate process: fluid-bed calciner (SCC 3-01-023-99)	0.021	C	ND	NA
Rotary soda ash dryers (SCC 3-01-023-06)	0.25	C	0.25	D
Fluid-bed soda ash dryers/coolers (SCC 3-01-023-07)	0.015	C	0.019	D
Soda ash screening (SCC 3-01-023-99)	0.0097	E	0.013	E
Soda ash storage/loading and unloading[c] (SCC 3-01-023-99)	0.0021	E	0.0026	E

[a] Filterable particulate matter is that material collected in the probe and filter of a Method 5 or Method 17 sampler. SCC = Source Classification Code. ND = no data. NA = not applicable.

[b] Total particulate matter includes filterable particulate and inorganic condensable particulate.

[c] For ambient temperature processes, all particulate matter emissions can be assumed to be filterable at ambient conditions. However, particulate sampling according to EPA Reference Method 5 involves the heating of the front half of the sampling train to temperatures that may vaporize some portion of this particulate matter, which will then recondense in the back half of the sampling train. For consistency, particulate matter measured as condensable according to Method 5 is reported as such.

the particulate matter can be assumed to be negligible. Emissions of carbon dioxide from selected processes are given in Table 8.12-4. Emissions from combustion sources such as boilers, and from evaporation of hydrocarbon fuels used to fire these combustion sources, are covered in other chapters of AP-42.

Particulate emissions from calciners and dryers are typically controlled by venturi scrubbers, electrostatic precipitators, and/or cyclones. Baghouse filters are not well suited to applications such as these, because of the high moisture content of the effluent gas. Particulate emissions from ore and product handling operations are typically controlled by either venturi scrubbers or baghouse filters. These control devices are an integral part of the manufacturing process, capturing raw materials and

Table 8.12-2 (English Units). CONTROLLED EMISSION FACTORS FOR PARTICULATE MATTER FROM SODIUM CARBONATE PRODUCTION

Process	Filterable Emissions[a]		Total Emissions[b]	
	lb/ton Of Product	EMISSION FACTOR RATING	lb/ton Of Product	EMISSION FACTOR RATING
Ore mining[c] (SCC 3-01-023-99)	0.0033	C	ND	NA
Ore crushing and screening[c] (SCC 3-01-023-99)	0.0021	D	0.0035	C
Ore transfer[c] (SCC 3-01-023-99)	0.0002	E	0.0002	E
Monohydrate process: rotary ore calciner (SCC 3-01-023-04/05)	0.18	A	0.23	B
Sesquicarbonate process: rotary calciner (SCC 3-01-023-99)	0.72	B	0.73	C
Sesquicarbonate process: fluid-bed calciner (SCC 3-01-023-99)	0.043	C	ND	NA
Rotary soda ash dryers (SCC 3-01-023-06)	0.50	C	0.52	D
Fluid-bed soda ash dryers/coolers (SCC 3-01-023-07)	0.030	C	0.39	D
Soda ash screening (SCC 3-01-023-99)	0.019	E	0.026	E
Soda ash storage/loading and unloading[c] (SCC 3-01-023-99)	0.0041	E	0.0051	E

[a] Filterable particulate matter is that material collected in the probe and filter of a Method 5 or Method 17 sampler. SCC = Source Classficiation Code. ND = no data. NA = not applicable.

[b] Total particulate matter includes filterable particulate and inorganic condensable particulate.

[c] For ambient temperature processes, all particulate matter emissions can be assumed to be filterable at ambient conditions; however, particulate sampling according to EPA Reference Method 5 involves the heating of the front half of the sampling train to temperatures that may vaporize some portion of this particulate matter, which will then recondense in the back half of the sampling train. For consistency, particulate matter measured as condensable according to Method 5 is reported as such.

product for economic reasons. Because of a lack of suitable emissions data for uncontrolled processes, both controlled and uncontrolled emission factors are presented for this industry. The uncontrolled emission factors have been calculated by applying nominal control efficiencies to the controlled emission factors.

Table 8.12-3 (Metric And English Units). UNCONTROLLED EMISSION FACTORS FOR PARTICULATE MATTER FROM SODIUM CARBONATE

Process	Nominal Control Efficiency (%)	Total[a]		
		kg/Mg Of Product	lb/ton Of Product	EMISSION FACTOR RATING
Ore mining (SCC 3-01-023-99)	99.9	1.6	3.3	D
* Ore crushing and screening (SCC 3-01-023-99)	99.9	1.7	3.5	E
Ore transfer (SCC 3-01-023-99)	99.9	0.1	0.2	E
Monohydrate process: rotary ore calciner (SCC 3-01-023-04/05)	99.9	90	180	B
Sesquicarbonate process: rotary calciner (SCC 3-01-023-99)	99	36	72	D
Sesquicarbonate process: fluid-bed calciner (SCC 3-01-023-99)	99	2.1	4.3	D
Rotary soda ash dryers (SCC 3-01-023-06)	99	25	50	E
Fluid-bed soda ash dryers/coolers (SCC 3-01-023-07)	99	1.5	3.0	E
Soda ash screening (SCC 3-01-023-99)	99.9	10	19	E
Soda ash storage/loading and unloading (SCC 3-01-023-99)	99.9	2.6	5.2	E

[a] Values for uncontrolled total particulate matter can be assumed to include filterable particulate and both organic and inorganic condensable particulate. For processes operating at significantly greater than ambient temperatures, these factors have been calculated by applying the nominal control efficiency to the controlled (as-measured) filterable particulate emission factors above.
SCC = Source Classification Code.

Table 8.12-4 (Metric And English Units). UNCONTROLLED EMISSION FACTORS FOR CARBON DIOXIDE FROM SODIUM CARBONATE PRODUCTION[a]

EMISSION FACTOR RATING: E

Process	Emissions	
	kg/Mg Of Product	lb/ton Of Product
Monohydrate process: rotary ore calciner (SCC 3-01-023-04/05)	200	400
Sesquicarbonate process: rotary calciner (SCC 3-01-023-99)	150	310
Sesquicarbonate process: fluid-bed calciner (SCC 3-01-023-99)	90	180
Rotary soda ash dryers (SCC 3-01-023-06)	63	130

[a] Factors are derived from analyses during emission tests for criteria pollutants, rather than from fuel analyses and material balances. SCC = Source Classification Code. References 8-26.

References For Section 8.12

1. D. S. Kostick, "Soda Ash", *Mineral Commodity Summaries 1992*, U. S. Department Of The Interior, 1992.

2. D. S. Kostick, "Soda Ash", *Minerals Yearbook 1989, Volume I: Metals And Minerals*, U. S. Department Of The Interior, 1990.

3. *Directory Of Chemical Producers: United States of America, 1990*, SRI International, Menlo Park, CA, 1990.

4. L. Gribovicz, "FY 91 Annual Inspection Report: FMC-Wyoming Corporation, Westvaco Soda Ash Refinery", Wyoming Department Of Environmental Quality, Cheyenne, WY, 11 June 1991.

5. L. Gribovicz, "FY 92 Annual Inspection Report: General Chemical Partners, Green River Works", Wyoming Department Of Environmental Quality, Cheyenne, WY, 16 September 1991.

6. L. Gribovicz, "FY 92 Annual Inspection Report: Rhône-Poulenc Chemical Company, Big Island Mine and Refinery", Wyoming Department Of Environmental Quality, Cheyenne, WY, 17 December 1991.

7. L. Gribovicz, 91 Annual Inspection Report: Texasgulf Chemical Company, Granger Trona Mine & Soda Ash Refinery", Wyoming Department Of Environmental Quality, Cheyenne, WY, 15 July 1991.

8. "Stack Emissions Survey: General Chemical, Soda Ash Plant, Green River, Wyoming", Western Environmental Services And Testing, Inc., Casper, WY, February 1988.

9. "Stack Emissions Survey: General Chemical, Soda Ash Plant, Green River, Wyoming", Western Environmental Services And Testing, Inc., Casper, WY, November 1989.

10. "Rhône-Poulenc Wyoming Co. Particulate Emission Compliance Program", TRC Environmental Measurements Division, Englewood, CO, 21 May 1990.

11. "Rhône-Poulenc Wyoming Co. Particulate Emission Compliance Program", TRC Environmental Measurements Division, Englewood, CO, 6 July 1990.

12. "Stack Emissions Survey: FMC-Wyoming Corporation, Green River, Wyoming", FMC-Wyoming Corporation, Green River, WY, October 1990.

13. "Stack Emissions Survey: FMC-Wyoming Corporation, Green River, Wyoming", FMC-Wyoming Corporation, Green River, WY, February 1991.

14. "Stack Emissions Survey: FMC-Wyoming Corporation, Green River, Wyoming", FMC-Wyoming Corporation, Green River, WY, January 1991.

15. "Stack Emissions Survey: FMC-Wyoming Corporation, Green River, Wyoming", FMC-Wyoming Corporation, Green River, WY, October 1990.

16. "Compliance Test Report: FMC-Wyoming Corporation, Green River, Wyoming", FMC-Wyoming Corporation, Green River, WY, 6 June 1988.

17. "Compliance Test Report: FMC-Wyoming Corporation, Green River, Wyoming", FMC-Wyoming Corporation, Green River, WY, 24 May 1988.

18. "Compliance Test Report: FMC-Wyoming Corporation, Green River, Wyoming", FMC-Wyoming Corporation, Green River, WY, 28 August 1985.

19. "Stack Emissions Survey: FMC-Wyoming Corporation, Green River, Wyoming", FMC-Wyoming Corporation, Green River, WY, December 1990.

20. "Emission Measurement Test Report Of GR3A Crusher", The Emission Measurement People, Inc., Cañon City, CO, 16 October 1990.

21. "Stack Emissions Survey: TG Soda Ash, Inc., Granger, Wyoming", Western Environmental Services And Testing, Inc., Casper, WY, August 1989.

22. "Compliance Test Reports", Tenneco Minerals, Green River, WY, 30 November 1983.

23. "Compliance Test Reports", Tenneco Minerals, Green River, WY, 8 November 1983.

24. "Particulate Stack Sampling Reports", Texasgulf, Inc., Granger, WY, October 1977 — September 1978.

25. "Fluid Bed Dryer Emissions Certification Report", Texasgulf Chemicals Co., Granger, WY, 18 February 1985.

26. "Stack Emissions Survey: General Chemical, Soda Ash Plant, Green River, Wyoming", Western Environmental Services And Testing, Inc., Casper, WY, May 1987.

ATTACHMENT B

MSDS FOR CPVC COMPOUND

TempRite CP..C
Material Safety Data Sheet

BFGoodrich

TempRite® CPVC POWDER COMPOUND

U.S. DOT: Not regulated

MSDS Number: 96394
Issue date: August, 1996
Supersedes: MSDS 93003 (1/93)

SECTION I

Manufacturer
The BFGoodrich Company
Specialty Polymers & Chemicals Div.
9911 Brecksville Road
Cleveland, OH 44141-3247
Telephone: 1-800-331-1144

Transportation Emergency Telephone
CHEMTREC: (800) 424-9300

Chemical Name/Synonyms
Mixture of chlorinated poly(chloroethene) and process/performance additives* such as processing aid, heat stabilizers, impact modifiers, lubricants, and pigments.

TSCA Status
Components are listed in EPA Inventory.
CAS Number: mixture.

* Specific chemical identity withheld as a trade secret (29CFR1910.1200(i)).

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

- Product contains the following chemical(s) subject to the reporting requirements (i.e., at or above de minimus amount) of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40CFR372: None known.
- Products contain or may contain the materials listed below.

Ingredient Name	CAS No.	Percent[1]	ACGIH TLV-TWA	OSHA PEL (U.S.A.)
· CPVC Resin	68648-82-8	>80%	PNOC 10 mg/m³	None established[2]
· Organotin compound (as Sn)	7440-31-5	<5%	TLV 0.1 mg/m³ skin STEL 0.2 mg/m³ skin	0.1 mg/m³ skin
· Titanium dioxide[3]	13463-67-7	<5%	TLV 10 mg/m³	5 mg/m³ total dust
· Carbon Black[4]	1333-86-4	<1%	3.5 mg/m³	3.5 mg/m³

1 Typical amount - not a specification.
2 As a guide, use 10 mg/m³ (5 mg/m³ respirable dust).
3 Some products (typically identified as "Natural") may contain <1% titanium dioxide, and perhaps none.
4 Some products may contain carbon black, while other products do not. IARC has reclassified carbon black as category 2B carcinogen (known animal carcinogen, possible human carcinogen).

Notes: - ACGIH TLV-TWA: Threshold Limit Value - Time Weighted Average for concentration of the chemical substance in the ambient workplace air for a normal 8-hour workday, 40-hour workweek, to which nearly all workers may be repeatedly exposed without adverse effect. American Conference of Governmental Industrial Hygienists, 1995/1996 Edition.
- PEL: OSHA Permissible Exposure Limit, 8-hour TWA, 29CFR1910.1000.
- PNOC: Particles Not Otherwise Classified (ACGIH).
- STEL: Short Term Exposure Limit, 15-minute TWA.
- The "skin" notation calls attention to the skin as an additional significant route of absorption of the listed chemical.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS (Typical data, not specifications)

Solubility in Water	Melt Processing Temp.	Specific Gravity (H_2O=1)
Insoluble	Typically >390°F (>200°C)	1.5-1.6

Other	Appearance and Odor
Characteristics such as boiling point, vapor pressure, vapor density, and evaporation rate are not applicable to this product.	Pigmented or unpigmented powder. Practically odorless.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash-Ignition Temp.	Self-Ignition Temp.	Flammable Limits in Air
~900°F (~482°C)*	Not determined	See Unusual Fire and Explosion Hazards

* Estimated result. Not specifically determined for every product.
- Flash-ignition temperature is the lowest initial temperature of air passing around the specimen at which sufficient combustible gas is evolved to be ignited by a small external pilot flame. Self-ignition temperature is the lowest initial temperature of air passing around the specimen at which, in the absence of an ignition source, ignition occurs of itself, as indicated by an explosion, flame or sustained glow.

Extinguishing Media
Water, ABC dry chemical, AFFF, and protein type air foams. CPVC compounds are "ordinary combustibles" (NFPA defined Class A). Carbon dioxide is not generally recommended for use on Class A fires as a lack of cooling capacity may result in reignition.

Special Firefighting Procedure
Wear self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a pressure-demand mode or other positive-pressure mode and protective clothing. Personnel not having suitable respiratory protection must leave the area to prevent significant exposure to toxic gases from combustion, burning, or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

Unusual Fire and Explosion Hazards
- Non-CPVC mixture components may burn with intense heat.
- Irritating or toxic substances will be emitted upon combustion, burning, or decomposition. Smoke from burning CPVC will be very irritating.
- Run off water from firefighting may have corrosive effects.
- Hydrogen chloride, a combustion product of CPVC, has a corrosive effect on many metals. Affected equipment surfaces and unprotected structural elements of buildings should be washed with a detergent based water solution to remove corrosive deposits as soon as possible after depositions have occurred.
- Because this product is a powder, airborne dust may occur. Dust explosion severity experiments show that typical CPVC-based powder compounds do not propagate dust explosions when subjected to a

12,000 volt AC electrical discharge at dust cloud concentrations up to 2.0 oz/ft³. A "secondary" dust explosion potential may exist. That is, a dust explosion of some other more sensitive material could cause CPVC-based powder that has settled on overhead surfaces, etc., to be dispersed into the propagating flame-front generated by the exploding product. In general, dust is a static charge generator which may be ignited by electrostatic discharge, electrical arcs, sparks, welding torches, cigarettes, open flame, or other significant heat sources. Although the risk of a dust explosion is low, as a precaution implement safety measures to eliminate hazard potential such as:

- Bond, ground and properly vent containers, conveyors, dust control devices and other transfer equipment. Prohibit flow of powder or dust through non-conductive ducts, vacuum hoses or pipes, etc.; only use grounded, electrically conductive transfer lines when pneumatically conveying product.
- Prevent accumulation of dust (e.g., well-ventilated conditions, promptly vacuuming spills, cleaning overhead horizontal surfaces, etc.). Eliminate ignition sources such as sparks or static buildup (e.g. humidification).
- Pouring product from its container may cause an electrostatic buildup which may be discharged as a spark. A spark can be an ignition source for solvent vapor/air mixtures. If you add this product to any combustible/flammable material, ensure appropriate safe handling practices such as provision for inerting flammable vapors and measures such as those cited above.
- A properly engineered explosion suppression system must be considered. See standards such as the National Fire Protection Association NFPA 654, "Standard for the Prevention of Dust Explosions in the Plastics Industry"; NFPA 69, "Explosion Prevention Systems"; NFPA 68, "Explosion Venting Protection"; NFPA 77, "Static Electricity" and other standards as the need exists.

SECTION V - REACTIVITY DATA

Stability	Hazardous Polymerization
Stable	Will not occur

Hazardous Decomposition Products (e.g., combustion, overheating, etc.)
Not determined. Thermal decomposition or pyrolysis may emit CO, CO_2, hydrogen chloride, organotins, hydrocarbons.

Potential Decomposition Product	ACGIH TLV-TWA/C/STEL	OSHA PEL/C
- Carbon monoxide	TLV 25 ppm	PEL 35 ppm; C 200 ppm
- Hydrogen chloride	C 5 ppm	C 5 ppm
- Organotin cmpd. (as Sn)	TLV 0.1 mg/m³ skin STEL 0.2 mg/m³ skin	0.1 mg/m³ skin

Note: "C" Means Ceiling Limit.

Melt Processing Emissions (e.g., extrusion, molding, etc.)
Potential melt processing emissions have not been fully determined. Volatiles (fumes, vapors and odors) from start up before processing, melt processing, and equipment break down/cleanup after melt processing are expected to be the primary hazard in an occupational setting. Trace amounts of organic tin compounds (less than 0.1 mg/m³) may be present in the ambient workplace atmosphere from melt processing. Trace amounts of carbon tetrachloride and chloroform are possible (see Appendix). If decomposition occurs in processing equipment due to hang up or stagnation, hydrogen chloride is generated. Conduct any operation emitting fumes or vapors under well-ventilated conditions.

Incompatibility (conditions/materials to avoid)

- Avoid overheating.
- Avoid contact with acetal, acetal copolymers and amine containing materials during processing. If processed together, these materials may be mutually destructive and degrade rapidly. Prevent cross contamination of feedstocks. Thoroughly purge and mechanically clean processing equipment to prevent

these materials from coming in contact with each other. Refer to technical service reports for specific equipment and procedural recommendations.

SECTION VI - HEALTH HAZARD DATA

NO TOXICITY STUDIES HAVE BEEN CONDUCTED ON THIS PRODUCT. Information presented is our best judgement based on the components of the mixture. As with all chemicals for which test data are limited or do not exist, caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure. AVOID EYE AND SKIN CONTACT. AVOID INHALATION. DO NOT INGEST, TASTE, OR SWALLOW. USE UNDER WELL-VENTILATED CONDITIONS. WEAR EYE PROTECTION AND PROTECTIVE GLOVES. WASH THOROUGHLY AFTER HANDLING. KEEP CONTAINER CLOSED WHEN NOT IN USE.

Acute and Chronic Health Effects

- Because this product is a powder, dust exposure may occur in an occupational setting. Mixture components can exhibit the following:
  - Eye contact: Contains components which may cause immediate or delayed eye irritation. The onset of irritation may not occur until several hours after exposure.
  - Skin contact: Contains components which may cause effects such as reddening, swelling, irritation, and dermatitis. The onset of symptoms may not occur until several hours after exposure. Organotins can be absorbed through the skin causing effects such as reddening, swelling, irritation, and ataxia (inability to coordinate body or muscular movements), hypersensitivity, and shaking.
  - Inhalation: Contains components which may cause effects such as irritation of the nose, throat, respiratory tract and lungs. May cause respiratory tract discomfort, nausea, headache, dizziness, lung damage, vomiting, dry throat, and abdominal pain.
  - Ingestion: Contains components which may cause effects such as depression, eye and nasal discharge, stomach and intestinal irritation, and diarrhea.
  - For carbon black (which may be a component of these powder compounds), no serious health effects have been established in man. Inflammation, lung fibrosis, and lung tumors have been observed in animals at levels which overload lung clearance mechanisms. Carbon black contains varying amounts of polynuclear aromatic compounds (PNA's) which have been found to cause cancer in animals. Solvent extracts of carbon black are carcinogenic to the skin of mice. It is classified by IARC to be a known animal carcinogen and a possible human carcinogen (Group 2B).
- Molten product causes skin burns.
- At elevated temperatures (e.g., processing temperature), this product may emit fumes and vapors that are irritating to the respiratory tract, eyes and/or skin of sensitive people. The concentration and composition of vapors will depend upon variables such as processing method and temperature. The potential for acute and/or chronic health effects will depend on the effectiveness of exhaust ventilation provided to the process area.
- Symptoms such as (but not limited to) coughing, tearing, and irritation must be regarded as potentially hazardous and measures taken to avoid exposure.
- Decomposition or combustion products cause irritation, possibly severe, to the eyes, respiratory tract, and skin. From any decomposing or burning material, overexposure may cause serious injury or may even cause death.

NOTE: Hydrogen chloride is detectable by its sharp pungent odor in concentrations as low as 1-5 ppm. Low concentrations (below 50 ppm) are not harmful in short-term exposures but do provide excellent warning properties by causing coughing or irritation. Because the protective response is so strong, humans rarely submit to damaging concentrations – instead, there is an unmistakable urge to leave the area. Repeated or prolonged exposure to high concentrations can cause eye and respiratory damage.

Target Organs	Routes of Entry
Eyes, skin, respiratory system, lungs.	Inhaling process vapors. Inhaling dust.

Carcinogenicity
Mixture components: Not listed by NTP, or OSHA. IARC has reclassified carbon black, a component of some Temprite® Powder Compounds, as category 2B carcinogen (known animal carcinogen, possible human carcinogen).

Medical Conditions Aggravated by Exposure
Preexisting skin and/or respiratory disorders or diseases may be aggravated. In persons with asthma, impaired pulmonary function or other types of chronic obstructive respiratory diseases (e.g., bronchitis, emphysema, bronchial hyperreactivity), skin allergies, eczema, etc., processing fumes or vapors may cause exacerbation of symptoms.

Emergency and First Aid Procedure
If irritation or other symptoms as noted above occur or persist from any route of exposure, remove the affected individual from the area; see a physician / get medical attention.
- Eye Contact: Treat as any foreign particulate matter in the eye.
- Skin Contact: For contact with powder (dust), wash the affected area with plenty of soap and water. If molten polymer contacts skin, cool the skin rapidly with water or ice. See a physician for removal of any adhering material and treatment of burn.
- Vapor Inhalation (melt processing vapors or decomposition products): Remove the affected individual to fresh air. Provide protection before allowing reentry.
- Dust Inhalation: Remove the affected individual to fresh air. Provide protection before allowing reentry.
- Ingestion: Rinse mouth with water. Drink plenty of water to cause dilution in the stomach. Induce vomiting by sticking finger down throat or by giving Syrup of Ipecac. Call a physician at once. Never give anything by mouth to an unconscious person.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND STORAGE

Steps to be taken in case material is released or spilled
Place into a container for reuse or disposal. Do not sweep or flush product into sewers or waterways. Use care to avoid dust generation. See Section VIII on control measures for appropriate personal protection equipment.

Waste Disposal Method
Incinerate or landfill waste in a properly permitted facility in accordance with federal, state and local regulations. Although this product is not defined or designated as hazardous by current provisions of the Federal (EPA) Resource Conservation and Recovery Act (RCRA, 40CFR261), recognize that in appropriate dust/air ratio, dust cloud in air has explosion potential. Land disposal should be in closed containers. Federal, state and local regulations where the waste material is generated, treated, and/or disposed of must be examined to verify the appropriate waste classification.

Precautions to be taken in handling and storage
- General Considerations. Conduct any operation emitting fumes or vapors under well-ventilated conditions. Ensure well-ventilated conditions by methods such as local mechanical exhaust ventilation, as necessary, during equipment start up and during operations such as hot melt processing (extruding, molding, etc.), cutting, regrinding, heat welding, soldering, and break down and cleanup of equipment after melt processing; and/or any other melt processing or pre/post-processing operation involving heat sufficient to result in fumes or vapors, or in product breakdown. Avoid continued, prolonged, and/or repeated breathing of fumes or vapors. Do not inhale, ingest, taste, swallow, or chew this product. Wash thoroughly after processing, especially before eating, smoking or using toilet facilities. Do not store or consume food in processing areas. Do not use processing equipment to heat food.
- Equipment Start Up/Cleanup. Equipment start up and break down/cleanup following normal melt processing always must be performed under well-ventilated conditions. CPVC compound may be held at process temperatures for a short time without significant decomposition. However, recognize that CPVC compounds are designed for continuous processing and that exposure to either prolonged elevated

temperature or excessive heat history (time) will result in decomposition. Melt processing equipment must not be shut down for extended periods of time with compound in it or decomposition will occur leading to irritating and/or toxic emissions as well as to possible corrosion of unprotected metal from HCl. For equipment shutdown at melt temperatures (typically ≥390-440°F [≥200-225°C]), we recommend the use of a purge compound such as acrylic or general purpose ABS (do not use flame-retarded or halogen-containing grades). In case of a power loss or other mishap, dismantling of the die assembly should begin immediately.

Special note: During equipment start up and when dismantling melt processing equipment, compound near, at, or above its normal processing temperature must never be allowed to accumulate in thick masses on the floor or elsewhere. The mass will be begin to thermally decompose and to swell due to internal gassing of the molten product which will emit fumes and vapors that are irritating to the respiratory tract, eyes and/or skin. Gassing may cause the mass to explode, especially if its surface is hardened with water. Molten waste should be collected as strands or flattened to 2 inches or less, and quenched in a drum of cold water. Decomposing product must be removed to a well-ventilated area, preferably outdoors.

- Processing fume condensate, which may include toxic contaminants from additives, may be combustible and should be removed periodically from exhaust hoods, ductwork and other surfaces. Impervious gloves should be worn during cleanup operations to prevent skin contact.
- Static electric buildup and discharge may occur when conveying, transferring or pouring product. The spark produced may be sufficient to ignite vapors of flammable liquids such as solvents used in adhesive preparation. Always transfer product by means which avoid static buildup. Avoid pouring product directly from its container into combustible or flammable material.
- Sprinklered warehouse areas are recommended. CPVC by itself typically will not support combustion but other combustible contents (e.g. wooden pallets, cardboard boxes, etc.) can provide sufficient fuel and heat to force CPVC and CPVC-based compounds to burn.

SECTION VIII - CONTROL MEASURES

Ventilation

Always provide well-ventilated conditions in operations such as extrusion, molding, cutting, sawing, machining, regrinding, heat welding, thermoforming, and any other processing or pre/post-processing operation involving heat sufficient to result in polymer breakdown and/or fumes or vapors. Volatiles from melt processing operations must not be discharged into unventilated or poorly ventilated work areas. The continuous supply of fresh air to the workplace and, when necessary, the continuous removal of volatiles through exhaust hoods will provide well-ventilated conditions for most operations. Ventilation must be adequate to maintain the ambient workplace atmosphere below exposure limits listed in Section II and V and to draw dust, fumes, vapors or smoke away from workers to prevent routine inhalation. Ventilation guidelines/techniques may be found in publications such as Industrial Ventilation American Conference of Governmental Industrial Hygienists, 6500 Glenway Avenue, Bldg. D-7, Cincinnati, OH 45211-4438 U.S.A.

Respiratory Protection

- Not normally necessary when well-ventilated conditions are provided.
- Abnormal conditions such as equipment malfunction, improper equipment, improper processing procedures, hang up, or stagnation of product during processing may cause decomposition. If general dilution or local exhaust ventilation is not adequate to avoid inhalation of fumes or vapors during setup/start up, processing, and equipment tear-down/cleanup, then exposed employees must be provided with suitable air supplied respirators approved by NIOSH/MSHA such as an airline respirator or positive pressure self-contained breathing apparatus.
- Routine inhalation of dust of any kind should be avoided. If dust inhalation cannot be avoided, wear a dust respirator approved by NIOSH/MSHA. Exercise care when dumping bags or otherwise transferring powder, sweeping, mixing or doing other tasks which can create dust.
- Respiratory protection, such as a NIOSH/MSHA approved positive pressure self-contained breathing

apparatus, is necessary to prevent inhalation of decomposition or combustion gasses.

Protective Equipment
- Safety glasses or goggles suitable for keeping dust out of the eyes.
- Protective gloves to avoid skin contact with product and for handling hot material during processing.
- Wear long sleeve shirt and trousers and other equipment as needed to avoid skin contact.

SECTION IX - TRANSPORTATION

Domestic Transportation (U.S.A.)
Not regulated.

International Transportation
- By airplane or truck: Not regulated.
- By vessel (water): Not regulated

SECTION X - HAZARD CLASSIFICATIONS/REGULATORY INFORMATION

Federal Regulations (U.S.A.)
- SARA Title III (40CFR311/312) Hazard Category: Acute (immediate) Health Hazard; Chronic (delayed) Health Hazard.
- SARA Title III Section 313 Toxic Chemical Substance(s) present at or above de minimus concentrations: None known.

State Regulations (U.S.A.)
While we do not specifically analyze these products, or the raw materials used in their manufacture, for substances on various state hazardous substances lists, to the best of our knowledge no such substances are present, or known to be present at reportable concentrations, except those specifically listed below:
- California Proposition 65 "substances known to the State of California to cause cancer, birth defects or other reproductive harm:" Carbon tetrachloride <50 ppm; chloroform <100 ppm.
- Massachusetts Substance List*: Chloroform >1 ppm; carbon tetrachloride >1 ppm.
- New Jersey Workplace Hazardous Substance List*: Chlorinated poly(chloroethene) (CAS 68648-82-8), organotin compound, modifier, lubricant, titanium dioxide (CAS 13463-67-7).
- Pennsylvania Right to Know Act*: Chlorinated poly(chloroethene), organotin compound, modifier, lubricant, titanium dioxide.
- * Unless specifically identified, chemical identity of non-CPVC components are confidential business information (trade secret) and are being withheld as permitted by 29CFR1910.1200.

International Regulations
- Canadian Controlled Products classification (WHMIS): Class D, Division 2B, for products without carbon black; Class D, Division 2A, for products which contain carbon black.
- Canadian Ingredient Disclosure List (WHMIS-IDL): Tin compound, n.o.s. >1%.
- Canadian Domestic Substances List (DSL): Mixture components are listed.
- European Economic Community hazard classification: Not regulated.
- European Economic Community EINECS: Monomers for CPVC resin are listed.

Hazard Rating Systems

NFPA 704*		HMIS**		Key: 0 = Insignificant;
Health:	2	Health:	1	1 = Slight; 2 = Moderate;
Flammability:	1	Flammability:	1	3 = High; 4 = Extreme;
Reactivity:	0	Reactivity:	0	B = Eye protection, gloves.
Special:	—	Personal Protection:	B	

* National Fire Protection Association rating identifies the severity of hazards of material during a fire emergency (i.e., "on fire").
** Hazardous Materials Identification System (National Paint and Coatings Association) rating applies to product "as packaged" (i.e., ambient temp.).

APPENDIX. Less than 0.01% (<100 ppm) of residual chloroform (CAS 67-66-3) and less than 0.005% (<50 ppm) of residual carbon tetrachloride (CAS 56-23-5) may remain bound in CPVC resin. The American Conference of Governmental Industrial Hygienists identifies each of these chemicals as cancer suspect agents (A2). The OSHA Permissible Exposure Limit (8-hour time-weighted average) to these substances is 2 ppm for chloroform and 5 ppm for carbon tetrachloride. The presence of these residual chemicals in TempRite® CPVC is not expected to create a hazard. In a well-ventilated workplace, the potential concentration of chloroform or carbon tetrachloride will be well below established threshold limit values. Monitoring of BFGoodrich CPVC production facilities show chloroform levels to be below 0.00003% (<0.3 ppm) and carbon tetrachloride levels to be below 0.00005% (<0.5 ppm) in the workplace air. BFGoodrich production workers are not required to wear special respiratory protection.

USER'S RESPONSIBILITY
This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to your employees or customers. It is your responsibility to use this information to develop appropriate work practice guidelines and employee instructional programs for your operation.

DISCLAIMER OF LIABILITY
As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this material. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, express or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state and local laws and regulations remains the responsibility of the user.

LABEL INFORMATION

PRODUCT: CPVC COMPOUND *.

* TEMPRITE®, BLAZEMASTER®, FLOWGUARD®, or any other new name, for any package.

No health hazards are expected during normal handling and processing of CPVC resin by itself and cube/pellet compounds under well-ventilated conditions. CPVC compound contains organotin components. From powder compound, organotins may be absorbed through the skin causing irritation or other effects. Avoid prolonged or repeated skin contact with powdered compound by wearing gloves. CPVC resin and powder compounds may generate static electricity which can ignite combustible gases/vapors. Powdered compound, cutting and regrinding operations also may create dust. If dust inhalation can not be avoided, wear a dust respirator approved by NIOSH/MSHA.

CAUTION! Fumes from heated compound may cause irritation of the eyes, skin, nose and throat. Overheating or decomposition creates vapors or smoke containing eye, respiratory tract and skin irritants, primarily hydrogen chloride. Well-ventilated conditions are necessary to eliminate hazard risk. Wear approved NIOSH/MSHA air-supplied respirator if ventilation is not adequate.

FIRST AID: If irritation occurs of persists from any route of exposure, remove the affected individual from the area. Call a physician.

Before using this product, read Material Safety Data bulletin for additional important information.

WITHIN THE U.S.A., IN CASE OF TRANSPORTATION EMERGENCY: CALL CHEMTREC: (800) 424-9300.

The BFGoodrich Company, Specialty Chemicals, 9911 Brecksville Road, Cleveland, OH 44141-3247. Telephone: (800) 331-1144.

ATTACHMENT C
SCRAP GRINDER EQUIPMENT INFORMATION

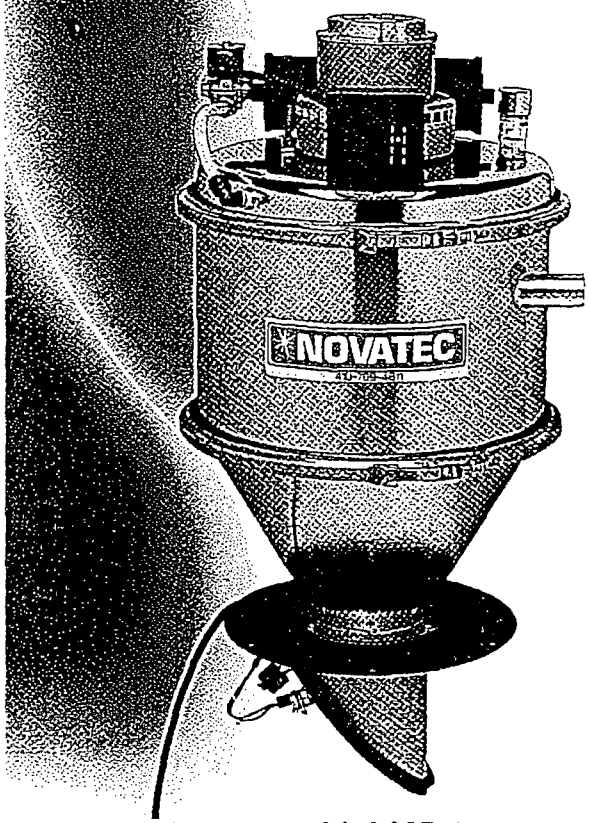
NOVATEC INC™

High Performance Products For The Plastics Industry

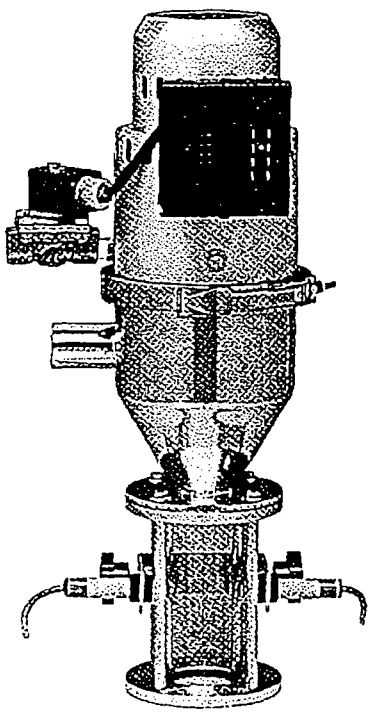
ISO 9001 QMI REGISTERED QUALITY SYSTEM

VACUUM LOADERS

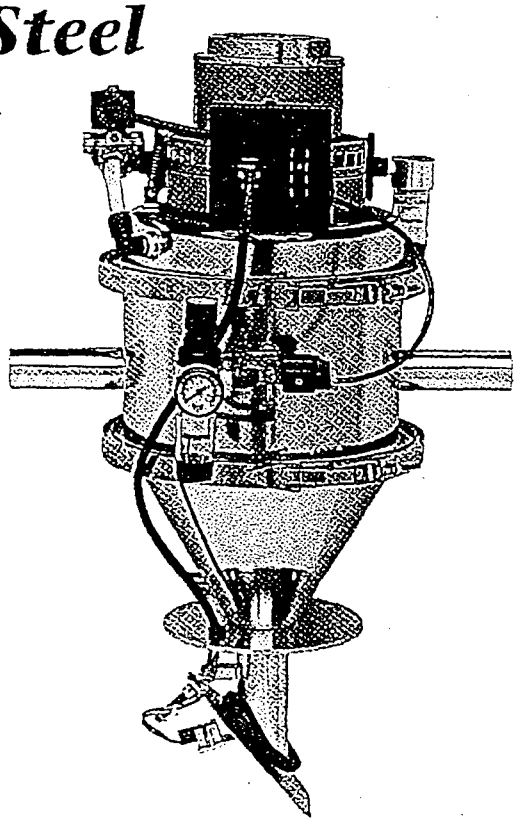
Electro-Polished Stainless Steel Finish



Model VL-1



Model VL-5 JIT



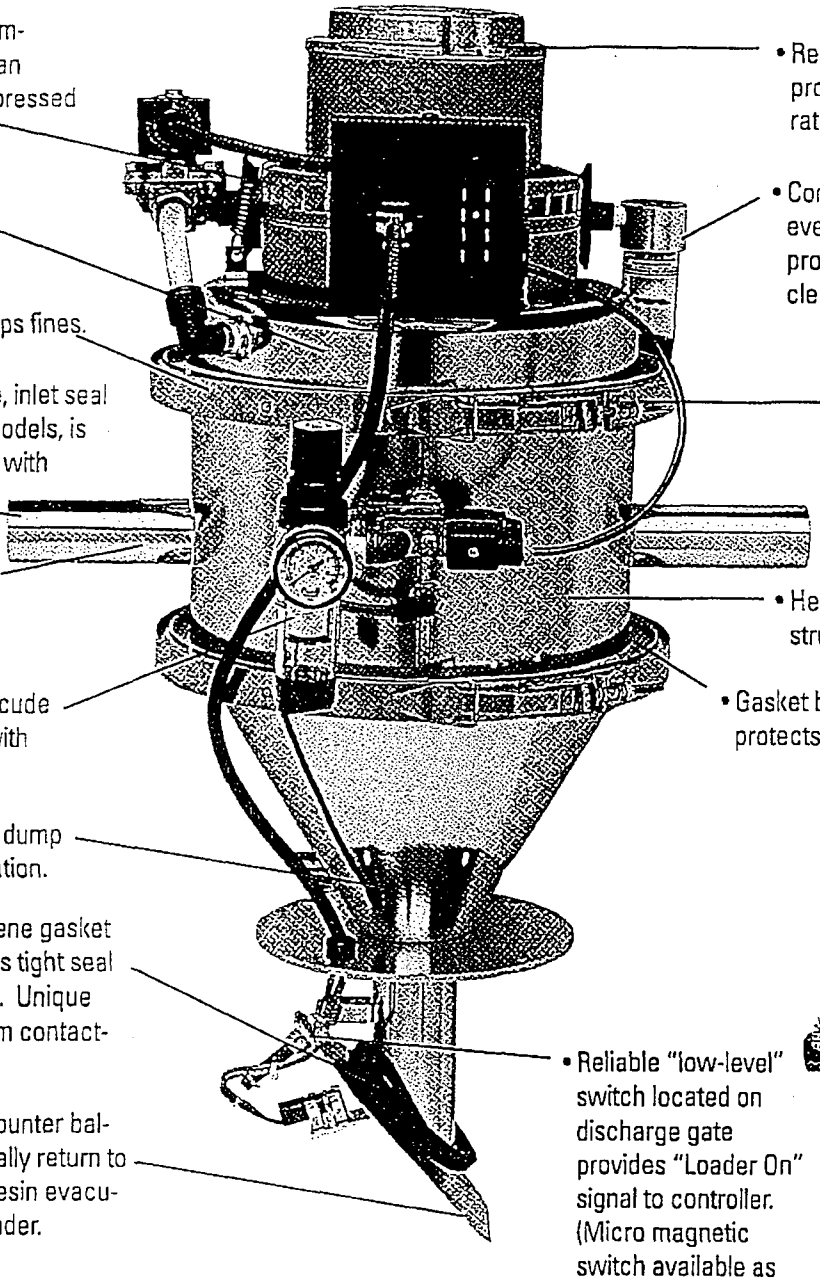
Model VL-4

Proportioning and Non-Proportioning With 50 to 1000 lb./hr. Thru-put rates

NOVATEC INC Vacuum Loaders

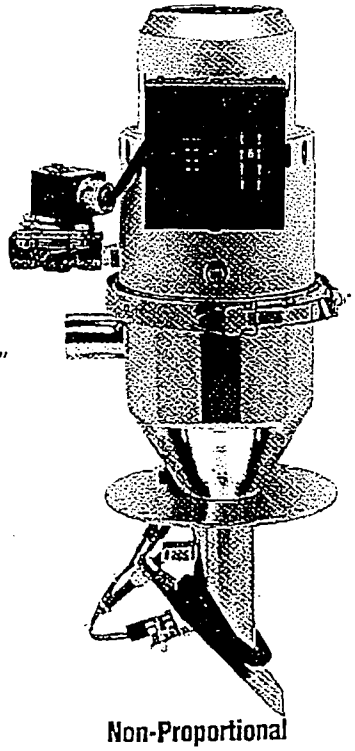
Engineered and built to provide years of reliable service. Our new Electro-Polished Stainless Steel Finis provides a more durable, scratch resistant finish in a contemporary style. Our modular design allows easy acces to maintenance points and quick cleanout for material changeover. They are ideally suited for virgin and/c regrind material.

- Accumulator tank with compressed air filter, assures an increased volume of compressed air for filter blowback. (VL-1 through VL-4 only)
- Expanded aluminum filter support extends filter life.
- Durable polyester filter traps fines.
- Custom molded, neoprene, inlet seal gasket on proportioning models, is designed to avoid contact with material flow.
- Tangential inlet minimizes material degradation. (Single inlet models only.)
- Proportioning models inlcude a compressed air filter with regulator guage.
- Heavy duty full flow dump throat speeds operation.
- Custom molded neoprene gasket on dump throat assures tight seal and no loss of vacuum. Unique design keeps resin from contacting gasket surface.
- Discharge gate is counter balanced to automatically return to closed position as resin evacuates the vacuum loader.



Proportional VL-4 Loader

- Reliable energy efficient motors provide 50 to 1000 lb./hr. thru-put rates.
- Compressed air blowback after every loading cycle automatically provides complete, effective cleaning of filter.
- Stainless steel band clamp with safety latch provides easy access (requires no tools).
- Heavy duty stainless steel construction.
- Gasket between modular sections protects against loss of vacuum.
- Reliable "low-level" switch located on discharge gate provides "Loader On" signal to controller. (Micro magnetic switch available as an option).

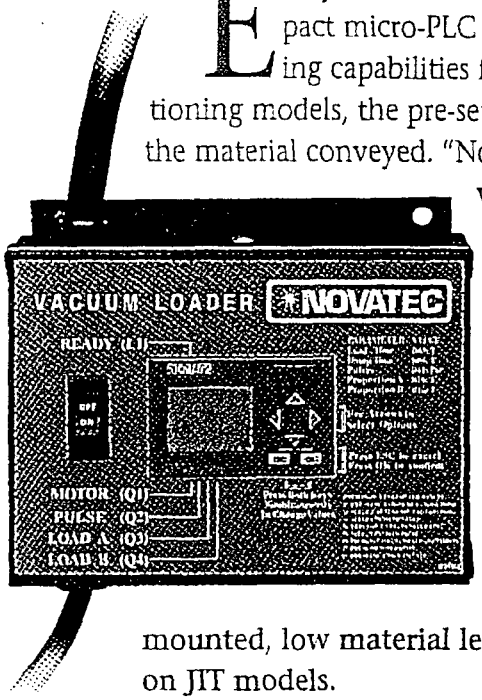


Non-Proportional VL-5 Loader

UNITS INCLUDE:

- Micro PLC based control.
- Plug-in remote mounting of controls up to 12 feet away
- Standard tubing package includes a 10 foot length of PVC flex hose and clamps with heavy duty aluminum suction lance for unloading drums or gaylords.
- 6 foot power cord for 115VAC or 230VAC, 50/60Hz connection.
- All material contact points are non-ferrous

One Micro-PLC Control Does It All!



Every model of NOVATEC's self-powered VL Series vacuum loader includes the same compact micro-PLC based control. This control includes complete programming and monitoring capabilities for load/unload cycles, adjustable filter cleaning pulses and, on proportioning models, the pre-setting of both material proportions and the layering (or blending effect) of the material conveyed. "No load alarm" with reset is a new dynamic feature that can be easily provided as an option.

The plug-in control can be remotely located at operator level and can be wired for voltages of 115 VAC or 230 VAC.

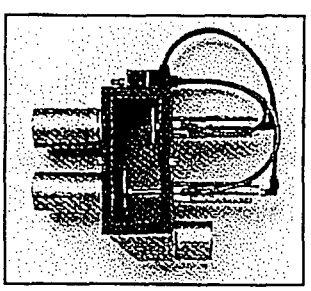
Selection, programming, and editing of loader operating parameters are accomplished through a user data interface on the control face. The graphic faceplate shows parameter and value codes and provides step-by-step programming instructions. LCD messages show existing and new values. An indicating cursor signals which value is being displayed.

Novatec's control includes a panel mounted on/off switch. The control receives a load-initiating signal from either a dump throat mounted, low material level switch or Novatec's "photo-eye" level switch, which is provided on JIT models.

The control can be programmed for material line purge applications when used on single inlet models or for operation of an external proportioning valve to convert single inlet models to proportioning units.

AVAILABLE OPTIONS:

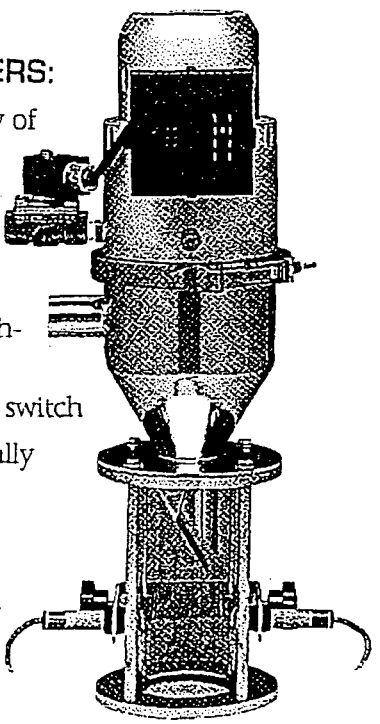
- VL-1 available with cartridge type powder filter for conveying free flowing powders.
- All models available with machine mount pedestal and glass sight tube for JIT operations.
- Brushless motor
- 230 v Power
- UL Approved
- "Flapper in glass" to assure positive seal at discharge of JIT loader.
- External proportioning valve available to convert single inlet loaders to proportioning.
- Silicone Gaskets



JIT SPECIAL APPLICATION LOADERS:

JIT Loaders provide many of the same advance features as other NOVATEC Vacuum Loaders with the following additions:

- Optically clear, borosilicate glass sight tube withstands 510°C.
- Reliable photo-eye level switch
- Height of level sensor fully adjustable by hand.
- 3-Pole twist-lock plug
- Secure machine mount provided by heavy duty aluminum plate.
- Available in all sizes.



Non-Proportioning VL-5 Loader designed for JIT application with optional flapper in-glass.

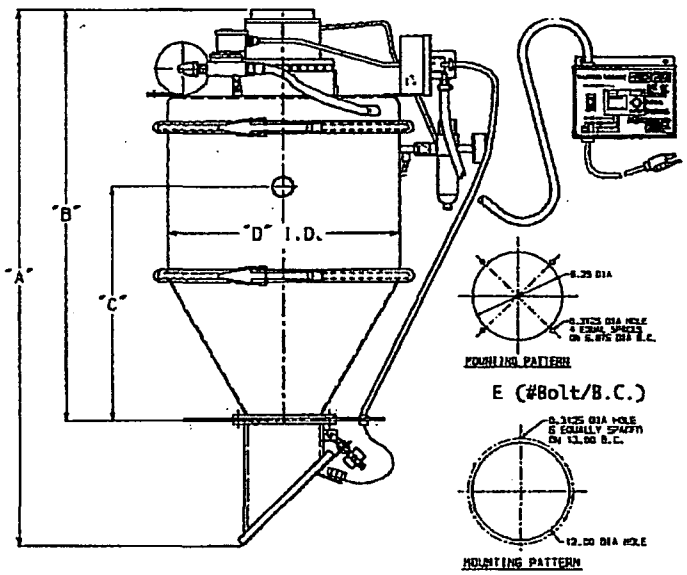
Specifications

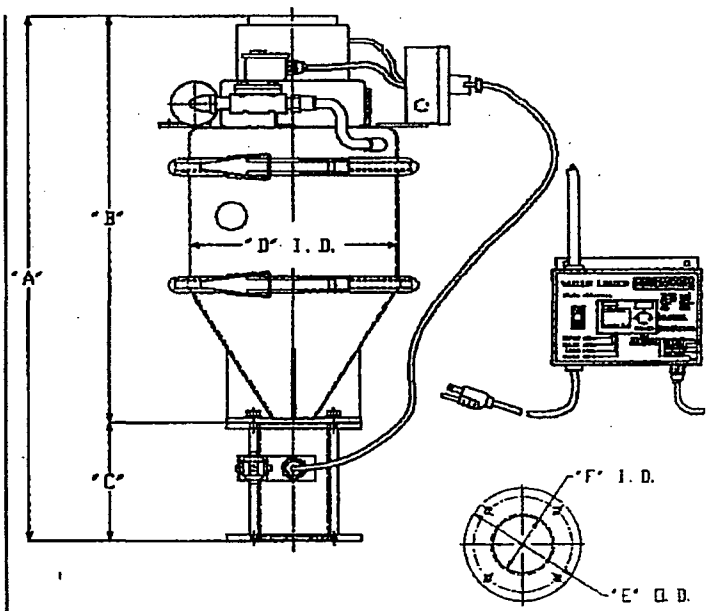
	Non-Proportioning			Proportioning	
	VL-1	VL-3	VL-5	VL-2	VL-4
Volume (cu. ft.)	1.0	1/3	1/8	1.0	1/3
Resin Capacity (lb.)	35	12	4.4	35	12
Discharge Diameter	5"	2"	2"	5"	2"
Total Load Time (sec.)	0 - 999	0 - 999	0 - 999	0 - 999	0 - 999
Dump Time (sec.)	0 - 999	0 - 999	0 - 999	0 - 999	0 - 999
Ratio Cycle (sec.)	N/A	N/A	N/A	0 - 999	0 - 999
Compressed Air Volume (CFM)	.2	.2	.2	.2	.2
Amps @115V	13	13	8	13	13

Voltage:	115v/1ph/50-60Hz
	230v/1ph/50-60Hz
Inlet Diameter:	1-1/2" OD
Vacuum:	7.0" Hg.
Pulse Duration:	500 milliseconds
Total Pulses:	1-499 (adjustable) (dump time dependant)
Air Service:	80 PSI required

Overall Dimensions and Weights (Standard Dump Throat Models)

	A	B	C	D	E	Shipping Weight (lbs.)
VL-1	37.6	28.9	17.4	16.0	6/13.0	80
VL-2	37.6	28.9	16.4	16.0	6/13.0	115
VL-3	28.0	21.6	10.7	10.0	4/6.9	60
VL-4	28.0	21.6	10.4	10.0	4/6.9	75
VL-5	21.0	15.4	5.1	6.0	4/6.9	50





Overall Dimensions and Weights (JIT Machine Mount Model)

	A	B	C	D	E	F	Shipping Weight (lbs.)
VL-3	28.4	22.0	6.4	10.0	6.5	3.3	65
VL-4	28.4	22.0	6.4	10.0	6.5	3.3	80
VL-5	22.3	15.8	6.5	6.0	5.3	2.3	50

24 Hour Customer Service

NOVATEC

222 East Thomas Avenue Baltimore, Maryland 21225 USA
www.novatecusa.com
Voice: 410-789-4811 Email: sales@novatecusa.com
Sales Fax: 410-789-4638 / Service Fax: 410-789-8923 / Spare Parts Fax: 410-789-3051

Accepting MasterCard VISA American Express