# Section 1. Registration Information

## Source Identification

| | |
|---|---|
| Facility Name: | Arkema Inc. - Crosby Plant |
| Parent Company #1 Name: | Arkema, Inc. |
| Parent Company #2 Name: | |

## Submission and Acceptance

| | |
|---|---|
| Submission Type: | Re-submission |
| Subsequent RMP Submission Reason: | 5-year update (40 CFR 68.190(b)(1)) |
| Description: | |
| Receipt Date: | 11-Jun-2014 |
| Postmark Date: | 11-Jun-2014 |
| Next Due Date: | 11-Jun-2019 |
| Completeness Check Date: | 11-Jun-2014 |
| Complete RMP: | Yes |
| De-Registration / Closed Reason: | |
| De-Registration / Closed Reason Other Text: | |
| De-Registered / Closed Date: | |
| De-Registered / Closed Effective Date: | |
| Certification Received: | Yes |

## Facility Identification

| | |
|---|---|
| EPA Facility Identifier: | 1000 0012 4457 |
| Other EPA Systems Facility ID: | |

## Dun and Bradstreet Numbers (DUNS)

| | |
|---|---|
| Facility DUNS: | |
| Parent Company #1 DUNS: | 622121697 |
| Parent Company #2 DUNS: | |

## Facility Location Address

| | |
|---|---|
| Street 1: | 18000 Crosby Eastgate Road |
| Street 2: | |
| City: | Crosby |
| State: | TEXAS |
| ZIP: | 77532 |
| ZIP4: | |
| County: | HARRIS |

## Facility Latitude and Longitude

| | |
|---|---|
| Latitude (decimal): | 29.943722 |
| Longitude (decimal): | -095.022722 |
| Lat/Long Method: | Interpolation - Satellite |
| Lat/Long Description: | Storage Tank |
| Horizontal Accuracy Measure: | 25 |
| Horizontal Reference Datum Name: | North American Datum of 1983 |
| Source Map Scale Number: | |

## Owner or Operator

| | |
|---|---|
| Operator Name: | Arkema Inc. |
| Operator Phone: | (281) 328-3561 |

## Mailing Address

| | |
|---|---|
| Operator Street 1: | 18000 Crosby Eastgate Road |
| Operator Street 2: | |
| Operator City: | Crosby |
| Operator State: | TEXAS |
| Operator ZIP: | 77532 |
| Operator ZIP4: | |
| Operator Foreign State or Province: | |
| Operator Foreign ZIP: | |
| Operator Foreign Country: | |

## Name and title of person or position responsible for Part 68 (RMP) Implementation

| | |
|---|---|
| RMP Name of Person: | Wendal Turley |
| RMP Title of Person or Position: | Plant Manager |
| RMP E-mail Address: | wendal.turley@arkema.com |

## Emergency Contact

| | |
|---|---|
| Emergency Contact Name: | Wendal Turley |
| Emergency Contact Title: | Plant Manager |
| Emergency Contact Phone: | (281) 328-9443 |
| Emergency Contact 24-Hour Phone: | (281) 328-9447 |
| Emergency Contact Ext. or PIN: | |
| Emergency Contact E-mail Address: | wendal.turley@arkema.com |

## Other Points of Contact

| | |
|---|---|
| Facility or Parent Company E-mail Address: | |
| Facility Public Contact Phone: | (281) 328-9422 |
| Facility or Parent Company WWW Homepage Address: | http://www.arkema.com |

## Local Emergency Planning Committee

| | |
|---|---|
| LEPC: | North Channel LEPC |

## Full Time Equivalent Employees

| | |
|---|---|
| Number of Full Time Employees (FTE) on Site: | 53 |
| FTE Claimed as CBI: | |

## Covered By

| | |
|---|---|
| OSHA PSM : | Yes |
| EPCRA 302 : | Yes |
| CAA Title V: | Yes |
| Air Operating Permit ID: | O-01554 |

## OSHA Ranking

OSHA Star or Merit Ranking:

## Last Safety Inspection

| | |
|---|---|
| Last Safety Inspection (By an External Agency) Date: | 12-Feb-2014 |
| Last Safety Inspection Performed By an External Agency: | State environmental agency |

## Predictive Filing

Did this RMP involve predictive filing?:

## Preparer Information

Preparer Name:
Preparer Phone:
Preparer Street 1:
Preparer Street 2:
Preparer City:
Preparer State:
Preparer ZIP:
Preparer ZIP4:
Preparer Foreign State:
Preparer Foreign Country:
Preparer Foreign ZIP:

## Confidential Business Information (CBI)

CBI Claimed:
Substantiation Provided:
Unsanitized RMP Provided:

## Reportable Accidents

| | |
|---|---|
| Reportable Accidents: | See Section 6. Accident History below to determine if there were any accidents reported for this RMP. |

## Process Chemicals

| | |
|---|---|
| Process ID: | 1000050291 |
| Description: | MPU Unit |
| Process Chemical ID: | 1000060875 |
| Program Level: | Program Level 3 process |
| Chemical Name: | 2-Methylpropene [1-Propene, 2-methyl-] |
| CAS Number: | 115-11-7 |
| Quantity (lbs): | 85256 |
| CBI Claimed: | |
| Flammable/Toxic: | Flammable |

| | |
|---|---|
| Process ID: | 1000050290 |
| Description: | MPU Unit |
| Process Chemical ID: | 1000060874 |
| Program Level: | Program Level 3 process |
| Chemical Name: | Sulfur dioxide (anhydrous) |
| CAS Number: | 7446-09-5 |
| Quantity (lbs): | 66260 |
| CBI Claimed: | |
| Flammable/Toxic: | Toxic |

## Process NAICS

| | |
|---|---|
| Process ID: | 1000050290 |
| Process NAICS ID: | 1000050753 |
| Program Level: | Program Level 3 process |
| NAICS Code: | 325199 |
| NAICS Description: | All Other Basic Organic Chemical Manufacturing |

| | |
|---|---|
| Process ID: | 1000050291 |
| Process NAICS ID: | 1000050754 |
| Program Level: | Program Level 3 process |
| NAICS Code: | 325199 |
| NAICS Description: | All Other Basic Organic Chemical Manufacturing |

# Section 2. Toxics: Worst Case

## Toxic Worst ID: 1000041041

| | |
|---|---|
| Percent Weight: | 100.0 |
| Physical State: | Gas liquified by pressure |
| Model Used: | EPA's RMP*Comp(TM) |
| Release Duration (mins): | 10 |
| Wind Speed (m/sec): | 1.5 |
| Atmospheric Stability Class: | F |
| Topography: | Rural |

### Passive Mitigation Considered

| | |
|---|---|
| Dikes: | |
| Enclosures: | |
| Berms: | |
| Drains: | |
| Sumps: | |
| Other Type: | |

# Section 3. Toxics: Alternative Release

## Toxic Alter ID: 1000043430

| | |
|---|---|
| Percent Weight: | 100.0 |
| Physical State: | Gas liquified by pressure |
| Model Used: | EPA's RMP*Comp(TM) |
| Wind Speed (m/sec): | 3.0 |
| Atmospheric Stability Class: | D |
| Topography: | Rural |

### Passive Mitigation Considered

| | |
|---|---|
| Dikes: | |
| Enclosures: | |
| Berms: | |
| Drains: | |
| Sumps: | |
| Other Type: | |

### Active Mitigation Considered

| | |
|---|---|
| Sprinkler System: | |
| Deluge System: | |
| Water Curtain: | |
| Neutralization: | |
| Excess Flow Valve: | Yes |
| Flares: | |
| Scrubbers: | |
| Emergency Shutdown: | Yes |
| Other Type: | |

# Section 4. Flammables: Worst Case

## Flammable Worst ID: 1000030809

| | |
|---|---|
| Model Used: | EPA's RMP*Comp(TM) |
| Endpoint used: | 1 PSI |

### Passive Mitigation Considered

| | |
|---|---|
| Blast Walls: | |
| Other Type: | |

# Section 5. Flammables: Alternative Release

## Flammable Alter ID: 1000028930

| | |
|---|---|
| Model Used: | EPA's RMP*Comp(TM) |

### Passive Mitigation Considered

| | |
|---|---|
| Dikes: | Yes |
| Fire Walls: | |
| Blast Walls: | |
| Enclosures: | |
| Other Type: | |

### Active Mitigation Considered

| | |
|---|---|
| Sprinkler System: | |
| Deluge System: | |
| Water Curtain: | |
| Excess Flow Valve: | Yes |
| Other Type: | Automatic Shutoff Systems |

# Section 6. Accident History

No records found.

# Section 7. Program Level 3

## Description

- Quantitative process hazard analyses (PHAs using LOPA methodology) Are completed on covered processes every five (5) years. Qualified PHA leaders are trained in PHA techniques approved under the OSHA PSM and EPA Risk Management standards.

- Written operating procedures are used for training and directing the work of operators, who receive refresher training every three years.

-Written operating procedures contain in-depth consequences of process deviation analysis.

-Operators, mechanics, and contractor personnel are qualified, trained in the general hazards in the facility, and informed of any temporary situations affecting safety. This includes Level III training for all operators;

-A Management of Change (MOC) system is in place to ensure that process-operating changes are managed safely;

-Environmental and Safety Critical equipment is inspected on a planned, periodic basis to ensure proper operating conditions;

-Pre-start-up safety reviews are performed to satisfy conditions for safe operation prior to starting new or modified equipment or processes;

-Incidents are investigated and actions taken as part of a continuous improvement effort;

-Routine audits are conducted to evaluate that safe practices are being followed;

-Storage tanks and associated equipment are designed and constructed in accordance with industry codes, standards (American Society of Mechanical Engineers - ASME), and practices;

-As part of the facility's Mechanical Integrity program, pressure vessels and transfer lines are inspected and tested according to the American Petroleum Institute (API) certified inspectors using API standards;

-All plant process components are inspected and monitored on a regularly scheduled basis as part of the leak detection and repair program (LDAR);

-The risk of over pressure of pressurized storage tanks is addressed by monitoring the tank temperature and pressure controllers;

- Covered storage vessels are sized with rupture discs and pressure relief valves;

-The risk of over filling of vessels is addressed by the use of process interlocks, high level alarms monitored by trained operators who monitor tank level indicators and metering devices;

-The risks of unloading releases are minimized by the use of: a) vapor balancing systems b) interlocks and c) remote shutoff devices when unloading chemicals into storage tanks;

-Access to the facility is restricted through security barriers and trained security personnel, thereby minimizing the risk to the tanks of vehicular damage or sabotage;

-A safety work permitting system is used to ensure routine and non-routine work is carried out after proper task identification, hazard assessment and implementation of safe work practices has taken place;

-Hazardous material delivery drivers are escorted into the plant. Access to all plant unloading lines is controlled via a key and lock system in the QC Laboratory to prevent inadvertent material transfers. Logistic personnel remain present during the entirety of the loading and unloading process.

## Program Level 3 Prevention Program Chemicals

| | |
|---|---|
| Prevention Program Chemical ID: | 1000051384 |
| Chemical Name: | Sulfur dioxide (anhydrous) |
| Flammable/Toxic: | Toxic |
| CAS Number: | 7446-09-5 |
| Process ID: | 1000050290 |
| Description: | MPU Unit |
| Prevention Program Level 3 ID: | 1000043000 |
| NAICS Code: | 325199 |

## Safety Information

| | |
|---|---|
| Safety Review Date (The date on which the safety information was last reviewed or revised): | 31-Oct-2013 |

## Process Hazard Analysis (PHA)

| | |
|---|---|
| PHA Completion Date (Date of last PHA or PHA update): | 31-Oct-2013 |

## The Technique Used

| | |
|---|---|
| What If: | |
| Checklist: | |
| What If/Checklist: | Yes |
| HAZOP: | Yes |
| Failure Mode and Effects Analysis: | |
| Fault Tree Analysis: | |
| Other Technique Used: | Layers of Protection Analysis (LOPA) |
| PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): | 30-Oct-2015 |

## Major Hazards Identified

| | |
|---|---|
| Toxic Release: | Yes |
| Fire: | Yes |
| Explosion: | Yes |
| Runaway Reaction: | Yes |
| Polymerization: | |
| Overpressurization: | Yes |
| Corrosion: | |
| Overfilling: | Yes |
| Contamination: | Yes |
| Equipment Failure: | Yes |
| Loss of Cooling, Heating, Electricity, Instrument Air: | Yes |
| Earthquake: | |
| Floods (Flood Plain): | Yes |
| Tornado: | |
| Hurricanes: | Yes |
| Other Major Hazard Identified: | Power Failure or Power Surge |

## Process Controls in Use

| | |
|---|---|
| Vents: | Yes |
| Relief Valves: | Yes |
| Check Valves: | Yes |
| Scrubbers: | Yes |
| Flares: | |
| Manual Shutoffs: | Yes |
| Automatic Shutoffs: | Yes |
| Interlocks: | Yes |
| Alarms and Procedures: | Yes |
| Keyed Bypass: | |
| Emergency Air Supply: | Yes |
| Emergency Power: | Yes |
| Backup Pump: | |
| Grounding Equipment: | Yes |
| Inhibitor Addition: | |
| Rupture Disks: | Yes |
| Excess Flow Device: | Yes |
| Quench System: | Yes |
| Purge System: | Yes |
| None: | |
| Other Process Control in Use: | UPS or Back-up Power Sources |

## Mitigation Systems in Use

| | |
|---|---|
| Sprinkler System: | Yes |
| Dikes: | Yes |
| Fire Walls: | |
| Blast Walls: | |
| Deluge System: | Yes |
| Water Curtain: | |
| Enclosure: | |
| Neutralization: | |
| None: | |
| Other Mitigation System in Use: | Fire Monitors |

## Monitoring/Detection Systems in Use

| | |
|---|---|
| Process Area Detectors: | Yes |
| Perimeter Monitors: | |
| None: | |
| Other Monitoring/Detection System in Use: | SO2 Area Monitors |

## Changes Since Last PHA Update

| | |
|---|---|
| Reduction in Chemical Inventory: | |
| Increase in Chemical Inventory: | |
| Change Process Parameters: | Yes |
| Installation of Process Controls: | Yes |
| Installation of Process Detection Systems: | Yes |
| Installation of Perimeter Monitoring Systems: | |
| Installation of Mitigation Systems: | |
| None Recommended: | |

None:

Other Changes Since Last PHA or PHA Update:

## Review of Operating Procedures

| | |
|---|---|
| Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): | 12-Nov-2013 |

## Training

| | |
|---|---|
| Training Revision Date (The date of the most recent review or revision of training programs): | 31-Jan-2014 |

## The Type of Training Provided

| | |
|---|---|
| Classroom: | Yes |
| On the Job: | Yes |
| Other Training: | web-based training (WBT) module |

## The Type of Competency Testing Used

| | |
|---|---|
| Written Tests: | Yes |
| Oral Tests: | |
| Demonstration: | Yes |
| Observation: | Yes |
| Other Type of Competency Testing Used: | |

## Maintenance

| | |
|---|---|
| Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): | 27-Sep-2013 |
| Equipment Inspection Date (The date of the most recent equipment inspection or test): | 14-May-2014 |
| Equipment Tested (Equipment most recently inspected or tested): | Fire Pumps and Generators |

## Management of Change

| | |
|---|---|
| Change Management Date (The date of the most recent change that triggered management of change procedures): | 12-May-2014 |
| Change Management Revision Date (The date of the most recent review or revision of management of change procedures): | 31-Jan-2014 |

## Pre-Startup Review

| | |
|---|---|
| Pre-Startup Review Date (The date of the most recent pre-startup review): | 06-May-2014 |

## Compliance Audits

| | |
|---|---|
| Compliance Audit Date (The date of the most recent compliance audit): | 08-Nov-2012 |
| Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): | 19-Dec-2014 |

## Incident Investigation

| | |
|---|---|
| Incident Investigation Date (The date of the most recent incident investigation (if any)): | 23-May-2014 |
| Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): | 30-Sep-2014 |

## Employee Participation Plans

| | |
|---|---|
| Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): | 02-Apr-2014 |

## Hot Work Permit Procedures

| | |
|---|---|
| Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): | 06-May-2014 |

## Contractor Safety Procedures

| | |
|---|---|
| Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): | 12-Feb-2014 |
| Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): | 11-Feb-2014 |

## Confidential Business Information

CBI Claimed:

## Description

This process covers the MPU production unit only. All of Arkema Inc., Crosby Facility's prevention program elements, in accordance with 29CFR1910.119 for Process Safety Management and the EPA Risk Management Program pursuant to 40CFR68, apply to this production unit.

## Program Level 3 Prevention Program Chemicals

| | |
|---|---|
| Prevention Program Chemical ID: | 1000051385 |
| Chemical Name: | 2-Methylpropene [1-Propene, 2-methyl-] |
| Flammable/Toxic: | Flammable |
| CAS Number: | 115-11-7 |
| Process ID: | 1000050291 |
| Description: | MPU Unit |
| Prevention Program Level 3 ID: | 1000043001 |
| NAICS Code: | 325199 |

## Safety Information

| | |
|---|---|
| Safety Review Date (The date on which the safety information was last reviewed or revised): | 31-Oct-2013 |

## Process Hazard Analysis (PHA)

| | |
|---|---|
| PHA Completion Date (Date of last PHA or PHA update): | 31-Oct-2013 |

## The Technique Used

| | |
|---|---|
| What If: | |
| Checklist: | |
| What If/Checklist: | Yes |
| HAZOP: | Yes |
| Failure Mode and Effects Analysis: | |
| Fault Tree Analysis: | |
| Other Technique Used: | Layers of Protection Analysis (LOPA) |
| PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): | 30-Oct-2015 |

## Major Hazards Identified

| | |
|---|---|
| Toxic Release: | Yes |
| Fire: | Yes |
| Explosion: | Yes |
| Runaway Reaction: | Yes |
| Polymerization: | |
| Overpressurization: | Yes |
| Corrosion: | Yes |
| Overfilling: | Yes |
| Contamination: | Yes |
| Equipment Failure: | Yes |

| | |
|---|---|
| Loss of Cooling, Heating, Electricity, Instrument Air: | Yes |
| Earthquake: | |
| Floods (Flood Plain): | Yes |
| Tornado: | |
| Hurricanes: | Yes |
| Other Major Hazard Identified: | Power Failure or Power Sure |

## Process Controls in Use

| | |
|---|---|
| Vents: | Yes |
| Relief Valves: | Yes |
| Check Valves: | Yes |
| Scrubbers: | Yes |
| Flares: | |
| Manual Shutoffs: | Yes |
| Automatic Shutoffs: | Yes |
| Interlocks: | Yes |
| Alarms and Procedures: | Yes |
| Keyed Bypass: | |
| Emergency Air Supply: | Yes |
| Emergency Power: | Yes |
| Backup Pump: | |
| Grounding Equipment: | Yes |
| Inhibitor Addition: | |
| Rupture Disks: | |
| Excess Flow Device: | Yes |
| Quench System: | Yes |
| Purge System: | Yes |
| None: | |
| Other Process Control in Use: | UPS or Back-up Power Sources |

## Mitigation Systems in Use

| | |
|---|---|
| Sprinkler System: | Yes |
| Dikes: | Yes |
| Fire Walls: | |
| Blast Walls: | |
| Deluge System: | Yes |
| Water Curtain: | |
| Enclosure: | |
| Neutralization: | |
| None: | |
| Other Mitigation System in Use: | |

## Monitoring/Detection Systems in Use

| | |
|---|---|
| Process Area Detectors: | Yes |
| Perimeter Monitors: | |
| None: | |
| Other Monitoring/Detection System in Use: | Four (4) LEL Detectors |

## Changes Since Last PHA Update

| | |
|---|---|
| Reduction in Chemical Inventory: | |
| Increase in Chemical Inventory: | |

| | |
|---|---|
| Change Process Parameters: | Yes |
| Installation of Process Controls: | Yes |
| Installation of Process Detection Systems: | Yes |
| Installation of Perimeter Monitoring Systems: | |
| Installation of Mitigation Systems: | |
| None Recommended: | |
| None: | |
| Other Changes Since Last PHA or PHA Update: | |

## Review of Operating Procedures

| | |
|---|---|
| Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): | 12-Nov-2013 |

## Training

| | |
|---|---|
| Training Revision Date (The date of the most recent review or revision of training programs): | 31-Jan-2014 |

## The Type of Training Provided

| | |
|---|---|
| Classroom: | Yes |
| On the Job: | Yes |
| Other Training: | web-based training (WBT) module |

## The Type of Competency Testing Used

| | |
|---|---|
| Written Tests: | Yes |
| Oral Tests: | Yes |
| Demonstration: | Yes |
| Observation: | Yes |
| Other Type of Competency Testing Used: | |

## Maintenance

| | |
|---|---|
| Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): | 27-Sep-2013 |
| Equipment Inspection Date (The date of the most recent equipment inspection or test): | 14-May-2014 |
| Equipment Tested (Equipment most recently inspected or tested): | Fire Pumps and Generators |

## Management of Change

| | |
|---|---|
| Change Management Date (The date of the most recent change that triggered management of change procedures): | 12-May-2014 |
| Change Management Revision Date (The date of the most recent review or revision of management of change procedures): | 31-Jan-2014 |

## Pre-Startup Review

| | |
|---|---|
| Pre-Startup Review Date (The date of the most recent pre-startup review): | 06-May-2014 |

## Compliance Audits

| | |
|---|---|
| Compliance Audit Date (The date of the most recent compliance audit): | 08-Nov-2013 |
| Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): | 19-Dec-2014 |

## Incident Investigation

| | |
|---|---|
| Incident Investigation Date (The date of the most recent incident investigation (if any)): | 23-May-2014 |
| Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): | 30-Sep-2014 |

## Employee Participation Plans

| | |
|---|---|
| Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): | 02-Apr-2014 |

## Hot Work Permit Procedures

| | |
|---|---|
| Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): | 06-May-2014 |

## Contractor Safety Procedures

| | |
|---|---|
| Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): | 12-Feb-2014 |
| Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): | 11-Feb-2014 |

## Confidential Business Information

CBI Claimed:

# Section 8. Program Level 2

No records found.

# Section 9. Emergency Response

## Written Emergency Response (ER) Plan

| | |
|---|---|
| Community Plan (Is facility included in written community emergency response plan?): | |
| Facility Plan (Does facility have its own written emergency response plan?): | Yes |
| Response Actions (Does ER plan include specific actions to be taken in response to accidental releases of regulated substance(s)?): | Yes |
| Public Information (Does ER plan include procedures for informing the public and local agencies responding to accidental release?): | Yes |
| Healthcare (Does facility's ER plan include information on emergency health care?): | Yes |

## Emergency Response Review

| | |
|---|---|
| Review Date (Date of most recent review or update of facility's ER plan): | 20-Sep-2013 |

## Emergency Response Training

| | |
|---|---|
| Training Date (Date of most recent review or update of facility's employees): | 29-Apr-2014 |

## Local Agency

| | |
|---|---|
| Agency Name (Name of local agency with which the facility ER plan or response activities are coordinated): | Crosby Volunteer Fire Department |
| Agency Phone Number (Phone number of local agency with which the facility ER plan or response activities are coordinated): | (281) 328-4512 |

## Subject to

| | |
|---|---|
| OSHA Regulations at 29 CFR 1910.38: | Yes |
| OSHA Regulations at 29 CFR 1910.120: | Yes |
| Clean Water Regulations at 40 CFR 112: | Yes |
| RCRA Regulations at CFR 264, 265, and 279.52: | Yes |
| OPA 90 Regulations at 40 CFR 112, 33 CFR 154, 49 CFR 194, or 30 CFR 254: | |
| State EPCRA Rules or Laws: | Yes |
| Other (Specify): | DOT Regulations 49CFR171-180, Clean Air Act, 30 TAC Chapters 101,106,115,116,117,122,324,327 (TCEQ) |

# Executive Summary

INTRODUCTION

The Arkema Inc. (Arkema) - Crosby, Texas manufacturing facility (Crosby facility) has prepared this Risk Management Plan (RMP) to reduce the risk of accidental releases of hazardous materials. This RMP summarizes the management, administrative, procedural, and technological controls that work together to minimize the risk to the community of hazardous chemical releases. The plan summary is organized to correspond with specific EPA RMP definitions and requirements, including the following:

-Arkema Inc Loss Control Program to Protect Health, Environment, and Safety;
-Facility Identification and Regulated Substances in Covered Processes;
-Hazard Assessment;
-Prevention Program;
-Five-Year Accident History;
-Emergency Response Plan; and
-Planned Changes to Improve Safety.

ARKEMA INC. LOSS CONTROL PROGRAM FOR HEALTH, ENVIRONMENT, AND SAFETY

Arkema is committed to employee, public, and environmental safety by conducting its operations in a safe and responsible manner. This commitment is inherent to a comprehensive risk management program that covers areas such as equipment design and installation, plant operating procedures, maintenance, and employee training associated with the processes at the Crosby plant. The RMP formalizes and documents these activities.

The Crosby facility employs practices, programs, and procedures in place for the prevention, mitigation and/or minimization of catastrophic consequences and releases from materials covered under either standard.

The Crosby facility has One primary operating production unit: MPU. In addition, the Wastewater Treatment System (WWTS) at the Crosby plant treats the wastewater from the production unit. The CPU Unit is demolished and the BPU unit is officially idled and decommissioned, however there are several tanks and vessels located in the pre-existing CPU Unit that operate in support of the MPU Processing Unit.

This commitment to Loss Control starts with AIMS, integrated management systems pertaining to health, environment, and safety (HES). This program starts with the CEO. Senior management routinely dedicates time to review HES matters. This emphasis on safety is carried through to the facility level, where the Plant Manager and the Safety Team regularly review safety performance, take corrective actions, and strive for continuous improvement. The success of Arkema Inc.'s HES programs is also reflected by a strong commitment to safety by employees and contractors.

Arkema's HES programs include policies, procedures, standards, and guidance materials designed to fulfill Arkema's commitment to health, environment and safety. These materials include RMP guidance to help our facilities prevent and/or reduce the risk of accidents.

FACILITY IDENTIFICATION AND REGULATED SUBSTANCES IN COVERED PROCESSES

The Arkema Crosby facility is located at 18000 Crosby-Eastgate Road in Crosby, Texas. The facility manufactures liquid organic peroxides, which are primarily used in the production of plastic resins, polystyrene, polyethylene, polypropylene, PVC, and fiberglass. Certain substances used and produced within the facility are regulated substances under 40 CFR 68, the EPA RMP rule. Two substances, sulfur dioxide (SO2) and 2-methyl Propene (Isobutylene) are present at, or above, the minimum threshold quantity (TQ) for RMP applicability.

The MPU process includes a batch and a continuous process area. Isobutylene and/or SO2 are used to produce and/or process the majority of the products produced in both the MPU batch and continuous process areas. Arkema has included all equipment, lines, vessels, storage tanks, and reactors in Building 30 as part of the PSM and RMP covered processes associated with SO2 and Isobutylene related equipment throughout the continuous process structure and batch process structure. The site evaluated the prevention program for each RMP compound separately.

The storage vessels used for the raw materials Isobutylene and Sulfur Dioxide are 30-T-71 and 17-T-19 respectively. The maximum inventory for Isobutylene is 85,256 lbs. This vessel is a raw material feedstock tank for the MPU batch and continuous processes and stores isobutylene in a pressurized vessel capable of containing the compound. The vessel is equipped with dual rupture disc and pressure relief valves. No further emission control is required for these pressure tanks under EPA BACT requirements. The Sulfur Dioxide feedstock vessel for all processes is located in CPU (17-T-19).

Additional specific equipment in Sulfur Dioxide Service:

EH-14 Evaporator used to vaporize sulfur dioxide that is transferred from 17-T-19 prior to distribution into the MPU Process for active oxygen destruction.

Spent Acid Treatment Tank (T-37) - The acid mother liquor from CF-1, Separated aqueous acid from T-30 or spent acid, is sent to 30-T-37 to be treated. SO2 is fed from 30-T-19 to 30-T-37 through a vaporizer at a controlled rate to destroy any active oxygen. Sulfur Dioxide emissions are routed to a sodium hydroxide scrubber 30-FS-95.

Spent Acid Treatment Tank (T-38)- Waste Acid is transferred from the MPU Continuous unit into T-38 at a controlled rate. Sulfur Dioxide is injected at the bottom of the tank at a rate of ~0.2 lb/min to destroy the Active Oxygen in the Waste Stream. Sulfur Dioxide emissions are routed to a sodium hydroxide scrubber 30-FS-95.

HAZARD ASSESSMENT
WORST-CASE RELEASE MITIGATION MEASURES

Assumptions:

There were five (5) key assumptions considered while assessing worst case release scenarios, and they are as follows:

A) A complete rupture of either the Isobutylene feedstock tank (30-T-71) or the Sulfur Dioxide feedstock tank (17-T-19).
B) All tank active safety systems failed
C) No Plant Emergency actions or systems activated and/or significantly delayed
D) Most favorable meteorological conditions for each worst case scenario and
E) Entire contents of each vessel were released during the worst case scenario

Rationale:

It is important to note that the rational and assessment methodology for each scenario has been revised based on the most current operations, reflecting changes made over the past 5 years, previous plant incidents, and amended process hazard assessment methodologies. The topography in all scenarios is based on a rural area verses an urban area to account for the adjacent farmland and lack of development within one mile of the Arkema Crosby facility. There was little change in the potentially affected residential population or distance to endpoint for all scenarios versus the previous RMP submission.

The multiple layers of preventive and mitigation measures in use at the Crosby facility make it very unlikely that either worst-case scenario will occur. In the unlikely event that such a release occurs, Arkema, Inc. has mitigation measures in place to reduce any potential impacts.

- Remote shut-off valves on tank piping designed to shutdown flow from the feedstock storage tanks, thereby reducing the amount potentially released;

- Area monitors that either prompt the control room to activate shutoff of vessel isolation valves and/or actually initiate automatic closing of the isolation valves.

- Excess flow valves on tank process feed lines from the storage vessels or within the process that shut off the flow of material in the case of high discharge pressure or loss of material containment. Thus this reduces the amount of material potentially released:

- Stationary fire monitors which are permanently and strategically placed water cannons with the capability to remove airborne vapor with water sprays or to lay suppressive water deluge from a distance of at least 70 feet from the fire;

-On-site emergency responders 24 hours per day as well as communications links with additional off-site responders and response equipment;

-The First Call Interactive Network enabling the facility to immediately notify the surrounding neighbors.

HAZARD ASSESSMENT
ALTERNATIVE RELEASE SCENARIOS MITIGATION MEASURES

In the Toxic alternate cases, the site has historically used a 1.5, 2.0 or 3.0 inch process line rupture or a 1.5, 2.0 or 3.0 inch hole rupture in the vessel as the alternate case consideration. Current operations dictate that a flange leak or fitting failure demonstrates a more likely alternate case scenario. The site chose to evaluate hose failures for SO2 Unloading or a flange leak on the low-pressure side of the SO2 Feed System, including the Storage Tank and Feed Pump suction piping, and the high-pressure side of the system, including the Feed Pump discharge and the Feed Line. The breach in each case was taken to be one-eighth inch diameter. Low-pressure releases were driven by a 40-psig upstream pressure, and high pressure releases were driven by 65-psig upstream pressure.

In the flammable alternate cases, two potential impacts are associated with a BLEVE: 1) overpressure shockwave, due to the failure of the vessel wall or 2) a sudden release of the vessel contents, and a fireball, due to ignition of the released flammable vapor. The calculated overpressure impact from a BLEVE of the Isobutylene Storage Tank, extending out to the 1 psi overpressure endpoint specified by the RMP Guidance, is 483 feet, falling within the site boundaries. The BLEVE fireball radiation impact, extending out to the 3.42x106 (watts/m2)4/3-sec thermal radiation dose as specified by the RMP guidance, is 1,053 feet, also approaching the yard of the residence nearest to the site. The site chose to submit the case involving the radiation impact from a BLEVE of the Isobutylene Storage as the required flammable alternate case.

While the alternate release scenarios are, by definition, more likely to occur they are subject to the systems within the facility's existing release and accident prevention program. In compliance with regulatory criteria associated with RMP evaluations, active mitigation systems cannot be considered in modeling worst-case scenario impacts; however, the significant planning and subsequent implementation that Arkema, Inc. has made in active mitigation measures could effectively reduce the risk associated with an RMP worst-case related incident. Mitigation measures include the following:

- Remote shut-off valves on tank piping designed to shutdown flow from the feedstock storage tanks, thereby reducing the amount potentially released;

- Area monitors that either prompt the control room to activate shutoff or vessel isolation valves and/or actually initiate automatic closing of the isolation valves.

-Remote shut-off valves on tank piping designed to shut down all flow from the storage tanks, thereby reducing the amount potentially released;

-Excess flow valves on tank process feed lines from the storage tanks designed to close in the case of a line failure, thereby reducing the amount potentially released;

-Stationary fire monitors are permanently and strategically placed water cannons with the capability to remove airborne vapor with water sprays or to lay suppressive water deluge from a distance of atleast 70 feet from the fire.

-On-site emergency responders 24 hours per day as well as emergency communications links with additional off-site responders and response equipment;

-The First Call Interactive Network enabling the facility to immediately notify the surrounding neighbors.

THE GENERAL ACCIDENTAL RELEASE PREVENTION PROGRAM AND CHEMICAL-SPECIFIC PREVENTION STEPS

The Arkema Crosby facility has an accidental release prevention program in place to minimize the risk of hazardous chemical releases. This program is designed to address the requirements of the EPA RMP pursuant to 40 CFR 68 and 29 CFR 1910.119, Process Safety Management (PSM). The accidental release prevention program includes the following elements and activities:

- Quantitative process hazard analyses (PHAs using LOPA methodology) are completed on covered processes every five (5) years. Qualified PHA leaders are trained in PHA techniques approved under the EPA RMP and OSHA PSM standards.

- Written operating procedures are used for training and directing the work of operators, who receive refresher training every three years.

-Written operating procedures contain in-depth consequences of process deviation analysis.

-Operators, mechanics, and contractor personnel are qualified, trained in the general hazards in the facility, and informed of any temporary situations affecting safety. This includes Level III training for all operators;

-A Management of Change (MOC) system is in place to ensure that process-operating changes are managed safely;

-Environmental and Safety Critical equipment is inspected on a planned, periodic basis to ensure proper operating conditions;

-Pre-start-up safety reviews are performed to satisfy conditions for safe operation prior to starting new or modified equipment or processes;

-Incidents are investigated and actions taken as part of a continuous improvement effort;

-Routine audits are conducted to evaluate that safe practices are being followed;

-Storage tanks and associated equipment are designed and constructed in accordance with industry codes, standards (American Society of Mechanical Engineers - ASME), and practices;

-As part of the facility's Mechanical Integrity program, pressure vessels and transfer lines are inspected and tested according to the American Petroleum Institute (API) certified inspectors using API standards;

-All plant process components are inspected and monitored on a regularly scheduled basis as part of the leak detection and repair program (LDAR);

-The risk of over pressure of pressurized storage tanks is addressed by monitoring the tank temperature and pressure controllers;

- Covered storage vessels are equipped with rupture discs and pressure relief valves;

-The risk of over filling of vessels is addressed by the use of process interlocks, high level alarms monitored by trained operators who monitor tank level indicators and metering devices;

-The risks of unloading releases are minimized by the use of: a) vapor balancing systems b) interlocks and c) remote shutoff devices when unloading chemicals into storage tanks;

-Access to the facility is restricted through security barriers and trained security personnel, thereby minimizing the risk to the tanks of vehicular damage or sabotage;

-A safety work permitting system is used to ensure routine and non-routine work is carried out after proper task identification, hazard assessment and implementation of safe work practices has taken place;

-Hazardous material delivery drivers are escorted into the plant. Access to all plant unloading lines is controlled via a key and lock system in the QC Laboratory to prevent inadvertent material transfers. Logistic personnel remain present during the entirety of the

loading and unloading process.

This systematic approach to process safety involves all facility employees. Management and facility personnel strive for continuing improvements in accident reduction. The training, qualification standards, and safety awareness of our operations, maintenance, and emergency response personnel are key elements in reducing and mitigating accidents.

FIVE YEAR ACCIDENT HISTORY

There have been no accidental off-site releases of applicable RMP chemicals from our facility in the previous five years.

EMERGENCY RESPONSE STATEMENT

The Arkema Crosby facility maintains a written Emergency Response Plan. The plan includes procedures for notifying civil authorities and the public in the event of an incident; documentation of proper first aid and medical treatment necessary to treat accidental human exposures; procedures for the use of emergency response equipment and for its inspection and testing; descriptions of the training programs for all employees in the relevant emergency response procedures; and the review and update of our response plan to reflect changes at the facility and to ensure that employees are informed of these changes. The appendix of the plan contains a listing of critical environmental, and critical safety equipment. The facility also conducts emergency drills on a regular basis.

PLANNED CHANGES FOR HEALTH, ENVIRONMENT, AND SAFETY

The facility has incorporated the environmental, safety, health, and quality into an integrated "loss control" management system at the Crosby facility. Chemical exposure risks to employees and the public have been minimized through ongoing internal risk reduction efforts, employee involvement and participation, and hazard evaluation and assessment. Arkema's Integrated Management Systems (AIMS) provides the framework for the site comprehensive health, environmental, and safety program. OHSAS 18001 requirements have been incorporated into the integrated management system.

CERTIFICATION

I certify to the best of my knowledge, the information, and belief formed after reasonable inquiry that the information submitted is true, accurate, and complete. The most recent approved NSR Air Permit Compliance period began on December 9,2011. The Crosby facility current Title V permit, operating permit number O-01554 was issued on August 28, 2011 and is currently reviewed and inspected by the TCEQ on a frequent basis.