

Section 25  
Brieser  
Construction  
SH&E  
Manual

April

2013

---

To prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals and establish guidelines for working around process equipment within operating units.

Process Safety  
Management

<b>BRIESER CONSTRUCTION GENERAL CONTRACTORS</b>		DATE:	PROCEDURE:
		4-17-13	TBD
<b>CORPORATE SAFETY, HEALTH &amp; ENVIRONMENTAL MANUAL</b>		Revision:	PAGE:
		02	2
STANDARD OPERATING PROCEDURE:	<b>Process Safety Management - PSM</b>		
CROSS REFERENCE:	<b>29 CFR 1926.64 Process safety management of highly hazardous chemicals</b>		

## **Purpose**

To prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals and establish guidelines for working around process equipment within operating units.

## **Scope**

This program shall apply to all Brieser Construction employees working around or on commissioned Process equipment that involves:

1. Chemical at or above the specified threshold quantities listed in CFR 1910.119 appendix A (attached)
2. Flammable liquid or gas on site in one location in a quantity of 10000 pounds or more (not including refueling stations, or heating gas storage)

## **Responsibilities**

Employees of Brieser Construction Co. will follow the plant PSM procedures set forth for working around such chemicals.

## **Procedure**

This PSM plan should encompass the following:

### **Owner responsibilities**

1. Evaluation of contractor safety programs
2. Information of known potential fire, explosion, or toxic released hazards
3. Emergency action plans
4. Dissemination of safe work practices around process equipment including; Process Hazard Analysis, Fault Tree Analysis, Hazard & Operability Studies (HAZOPS) and Scope of Work containing management of change procedures and specifications.
5. Owner auditing of contractor performance
6. Maintenance of injury and illness logs.

<b>BRIESER CONSTRUCTION GENERAL CONTRACTORS</b>		DATE:	PROCEDURE:
		4-17-13	TBD
<b>CORPORATE SAFETY, HEALTH &amp; ENVIRONMENTAL MANUAL</b>		Revision:	PAGE:
		02	3
STANDARD OPERATING PROCEDURE:	<b>Process Safety Management - PSM</b>		
CROSS REFERENCE:	<b>29 CFR 1926.64 Process safety management of highly hazardous chemicals</b>		

7. Hot Work shall not be performed until a Hot Work Permit is obtained from our customer/host/facility/client. If a customer Hot Work Permit is being used, it shall be compared to this policies Hot Work Permit and verified that all sections are as stringent as or more stringent than this policy.
8. All incidents must be immediately reported to the Safety Manager immediately. Bill Petersen (630)816-2283

### **Contractor responsibilities**

1. Proper training to perform job
2. Instruction of known potential fire, explosion, or toxic release hazards to the employee related to their job and the process.
3. Documentation of training
4. Assurance that employees follow facility safety rules & respect the confidentiality of trade secret information.
5. Notification to the owner of hazards that are associated with the Contractors work and of any hazards found by the Contractor .

<b>BRIESER CONSTRUCTION GENERAL CONTRACTORS</b>		DATE:	PROCEDURE:
		4-17-13	TBD
<b>CORPORATE SAFETY, HEALTH &amp; ENVIRONMENTAL MANUAL</b>		Revision:	PAGE:
		02	4
STANDARD OPERATING PROCEDURE:	Process Safety Management - PSM		
CROSS REFERENCE:	29 CFR 1926.64 Process safety management of highly hazardous chemicals		

### Subpart H-Hazardous Materials

#### APPENDIX A TO § 1910.119-LIST OF HIGHLY HAZARDOUS CHEMICALS, TOXICS AND REACTIVES (MANDATORY)

This appendix contains a listing of toxic and reactive highly hazardous chemicals which present a potential for a catastrophic event at or above the threshold quantity.

CHEMICAL NAME	CAS*	TQ**
Acetaldehyde.....	75-07-0	2500 150
..... Acrolein (2-Propenal).....	107-02-8	250 1000
..... Acrylyl chloride.....	814-68-6	1000 5000
..... Allyl chloride.....	107-107-05-1	1000 0
..... Allylamine.....	107-11-9	0 7500
..... Alkylaluminums.....	Varie s	7500 7500
..... Ammonia, Anhydrous.....	7664-41-7	100 100
..... Ammonia solutions (>44% ammonia by weight).....	7664-41-7	2500 250
..... Ammonium Perchlorate.....	7790-98-9	1500 1500
..... Ammonium Permanganate.....	7787-36-2	2500 1500
..... Arsine (also called Arsenic Hydride).....	7784-42-1	0 100
..... Bis(Chloromethyl) Ether.....	542-88-1	5000 7500
..... Boron Trichloride.....	10294-34-5	100 2500
..... Boron Trifluoride.....	7637-07-2	2500 1500
..... Bromine.....	7726-95-6	1000 1000
..... Bromine Chloride.....	13863-41-7	1000 5000
..... Bromine Pentfluoride.....	7789-30-2	5000 500
..... Bromine.....	7787-71-5	500 1500
..... Bromine.....	106-96-7	1500 5000
..... Bromine.....	75-75-	2500 2500

<b>BRIESER CONSTRUCTION GENERAL CONTRACTORS</b>		DATE:	PROCEDURE:
		4-17-13	TBD
<b>CORPORATE SAFETY, HEALTH &amp; ENVIRONMENTAL MANUAL</b>		Revision:	PAGE:
		02	5
STANDARD OPERATING PROCEDURE:	<b>Process Safety Management - PSM</b>		
CROSS REFERENCE:	<b>29 CFR 1926.64 Process safety management of highly hazardous chemicals</b>		

	..	91-2	500
	<b>Bromine</b>	614-	100
Trifluoride.....		45-9	5000
	..	75-	500
	<b>3-Bromopropyne (also called Propargyl Bromide).....</b>	44-5	7500
	<b>Butyl Hydroperoxide</b>	353-	100
(Tertiary).....		504	5000
	<b>Butyl Perbenzoate</b>	9004-	250
(Tertiary).....		70-0	2500
	<b>Carbonyl Chloride (see</b>	7782-	1000
Phosgene).....		50-5	0
	<b>Carbonyl</b>	10049	7500
Fluoride.....		-04-4	7500
	<b>Cellulose Nitrate (concentration &gt;12.6% nitrogen).....</b>	13637	1000
Chlorine.....		-63-3	1000
	.....	7790-	
	<b>Chlorine</b>	91-2	
Dioxide.....		96-	
	...	10-6	
	<b>Chlorine</b>	97-	
Pentafluoride.....		00-7	
	.	107-	
	<b>Chlorine</b>	30-2	
Trifluoride.....		76-	
	.	06-2	
	<b>Chlorodiethylaluminum (also called Diethyl aluminum Chloride).....</b>	None	None
	<b>1-Chloro-2, 4-</b>	80-	
Dinitrobenzene.....		15-9	
	<b>Chloromethyl Methyl</b>	460-	
Ether.....		19-5	
Chloropicrin.....		506-	
	.....	774	
	<b>Chloropicrin and Methyl Bromide</b>	675-	
mixture.....		14-9	
	<b>Chloropicrin and Methyl Chloride</b>	110-	
mixture.....		22-5	
	<b>Cumene</b>	334-	
Hydroperoxide.....		88-3	
	.	94-	
	.	36-0	
Cyanogen.....		19287	
	.....	-45-7	
	<b>Cyanogen</b>	110-	
Chloride.....		05-4	
	<b>Cyanuric</b>	7572-	
Fluoride.....		29-4	
	.	4109-	
	<b>Diacetyl Peroxide (Concentration</b>	96-0	
		557-	

<b>BRIESER CONSTRUCTION GENERAL CONTRACTORS</b>		DATE:	PROCEDURE:
		4-17-13	TBD
<b>CORPORATE SAFETY, HEALTH &amp; ENVIRONMENTAL MANUAL</b>		Revision:	PAGE:
		02	6
STANDARD OPERATING PROCEDURE:	<b>Process Safety Management - PSM</b>		
CROSS REFERENCE:	<b>29 CFR 1926.64 Process safety management of highly hazardous chemicals</b>		

>70%).....		20-0	
Diazomethane.....		105-64-6	
..... Dibenzoyl		105-74-8	
Peroxide.....		75-78-5	
Diborane.....	..... Dibutyl Peroxide	57-14-7	
(Tertiary).....	..... Dichloro		
Acetylene.....	..		
Dichlorosilane.....	.....		
Diethylzinc.....	..... Dilsopropyl		
Peroxydicarbonate.....	..... Dilauroyl		
Peroxide.....	.		
Dimethyldichlorosilane.....	..... Dimethylhydrazine, 1, 1-		
.....			
<b>General Industry Standards</b>			
<b>CHEMICAL NAME</b>		<b>CAS*</b>	<b>TQ**</b>
Dimethylamine,		124-40-3	2500
Anhydrous.....	2, 4	97-02-9	5000
Dinitroaniline.....	.....	1338-7500	5000
Ethyl Methyl Ketone Peroxide (also Methyl Ethyl Ketone Peroxide; concentration >60%).....	Ethyl	23-4109-5	100
Nitrite.....	.....	75-04-7	1000
Ethylamine.....	.....	371-62-0	500
Fluorohydrin.....	..... Ethylene	75-21-8	5000
Oxide.....	..... Ethylene	151-56-4	1000
Ethyleneimine.....	.	7782-41-4	1000
Fluorine.....	.....	50-00-0	7500
	.....	110-00-9	150
	.....	00-9	2500

<b>BRIESER CONSTRUCTION GENERAL CONTRACTORS</b>		DATE:	PROCEDURE:
		4-17-13	TBD
<b>CORPORATE SAFETY, HEALTH &amp; ENVIRONMENTAL MANUAL</b>		Revision:	PAGE:
		02	7
STANDARD OPERATING PROCEDURE:	<b>Process Safety Management - PSM</b>		
CROSS REFERENCE:	<b>29 CFR 1926.64 Process safety management of highly hazardous chemicals</b>		

	<b>Formaldehyde</b>	<b>684-</b>	<b>250</b>
<b>(Formalin)</b> .....		<b>16-2</b>	<b>5000</b>
<b>Furan</b> .....		<b>7647-</b>	<b>100</b>
		<b>01-0</b>	<b>1000</b>
<b>Hexafluoroacetone</b> .....		<b>7664-</b>	<b>150</b>
		<b>39-3</b>	<b>100</b>
	<b>Hydrochloric Acid,</b>	<b>10035</b>	<b>250</b>
<b>Anhydrous</b> .....		<b>-10-6</b>	<b>1000</b>
	<b>Hydrofluoric Acid,</b>	<b>7647-</b>	<b>2500</b>
<b>Anhydrous</b> .....		<b>01-0</b>	<b>1500</b>
	<b>Hydrogen</b>	<b>74-</b>	<b>0</b>
<b>Bromide</b> .....		<b>90-8</b>	<b>500</b>
	<b>Hydrogen</b>	<b>7664-</b>	<b>5000</b>
<b>Chloride</b> .....		<b>39-3</b>	<b>100</b>
	<b>Hydrogen Cyanide,</b>	<b>7722-</b>	<b>100</b>
<b>Anhydrous</b> .....		<b>84-1</b>	<b>100</b>
	<b>Hydrogen</b>	<b>7783-</b>	<b>7500</b>
<b>Fluoride</b> .....		<b>07-5</b>	<b>250</b>
	<b>Hydrogen Peroxide (52% by weight or</b>	<b>7783-</b>	<b>5000</b>
<b>greater)</b> .....	<b>Hydrogen</b>	<b>06-4</b>	<b>100</b>
<b>Selenide</b> .....		<b>7803-</b>	<b>500</b>
	<b>Hydrogen</b>	<b>49-8</b>	<b>150</b>
<b>Sulfide</b> .....		<b>13463</b>	<b>500</b>
	<b>Hydroxylamine</b> .....	<b>-40-6</b>	<b>250</b>
	<b>Iron,</b>	<b>75-</b>	<b>5000</b>
<b>Pentacarbonyl</b> .....		<b>31-0</b>	<b>2500</b>
		<b>463-</b>	<b>250</b>
<b>Isopropylamine</b> .....		<b>51-4</b>	<b>250</b>
		<b>78-</b>	<b>250</b>
<b>Ketene</b> .....		<b>85-3</b>	<b>5000</b>
		<b>920-</b>	<b>250</b>
<b>Methacrylaldehyde</b> .....		<b>46-7</b>	<b>1000</b>
		<b>30674</b>	<b>100</b>
	<b>Methacryloyl</b>	<b>-80-7</b>	<b>100</b>
<b>Chloride</b> .....		<b>126-</b>	<b>100</b>
	<b>Methacryloyloxyethyl</b>	<b>98-7</b>	
<b>Isocyanate</b> .....		<b>74-</b>	
	<b>Methyl</b>	<b>89-5</b>	
<b>Acrylonitrile</b> .....		<b>74-</b>	
		<b>83-9</b>	
	<b>Methylamine,</b>	<b>74-</b>	
<b>Anhydrous</b> .....		<b>87-3</b>	
	<b>Methyl</b>	<b>79-</b>	
<b>Bromide</b> .....		<b>22-1</b>	
		<b>1338-</b>	
	<b>Methyl</b>	<b>23-4</b>	
<b>Chloride</b> .....		<b>453-</b>	
		<b>18-9</b>	
	<b>Methyl</b>	<b>421-</b>	
<b>Chloroformate</b> .....		<b>20-5</b>	

<b>BRIESER CONSTRUCTION GENERAL CONTRACTORS</b>		DATE:	PROCEDURE:
		4-17-13	TBD
<b>CORPORATE SAFETY, HEALTH &amp; ENVIRONMENTAL MANUAL</b>		Revision:	PAGE:
		02	8
STANDARD OPERATING PROCEDURE:	Process Safety Management - PSM		
CROSS REFERENCE:	29 CFR 1926.64 Process safety management of highly hazardous chemicals		

	.....	60-
Methyl Ethyl Ketone Peroxide (concentration >60%).....		34-4
	Methyl	74-
Fluoroacetate.....		88-4
	.....	624-
	Methyl	83-9
Fluorosulfate.....		74-
	.....	93-1
	Methyl	79-
Hydrazine.....		84-4
	.....	75-
	Methyl	79-6
Iodide.....		13463
	.....	-39-3
	Methyl	7697-
Isocyanate.....		37-2
	.....	10102
	Methyl	-43-9
Mercaptan.....		100-
	.....	01-6
	Methyl Vinyl	75-
Ketone.....		52-5
Methyltrichlorosilane.....		10102
	.....	-44-0
	Nickel Carbonyl (Nickel	10102
Tetracarbonyl).....		-44-0
	Nitric Acid (94.5% by weight or	10544
greater).....		-72-6
	Nitric	7783-
Oxide.....		54-2
	.....	10544
	Nitroaniline (para	-73-7
Nitroaniline).....		8014-
Nitromethane.....		94-
	.....	20816
	Nitrogen	-12-0
Dioxide.....		7783-
	. Nitrogen Oxides (NO; NO <sub>2</sub> ; N <sub>2</sub> O <sub>4</sub> ;	41-7
N <sub>2</sub> O <sub>3</sub> ).....		10028
	Nitrogen Tetroxide (also called Nitrogen	-15-6
Peroxide).....		
	Nitrogen	
Trifluoride.....		
	.	
	Nitrogen	
Trioxide.....		
	.	
Oleum (65% to 80% by weight; also called Fuming Sulfuric Acid).....		



<b>BRIESER CONSTRUCTION GENERAL CONTRACTORS</b>		DATE:	PROCEDURE:
		4-17-13	TBD
<b>CORPORATE SAFETY, HEALTH &amp; ENVIRONMENTAL MANUAL</b>		Revision:	PAGE:
		02	9
STANDARD OPERATING PROCEDURE:	Process Safety Management - PSM		
CROSS REFERENCE:	29 CFR 1926.64 Process safety management of highly hazardous chemicals		

<b>Osmium</b>		
Tetroxide.....		
..		
<b>Oxygen Difluoride (Fluorine</b>		
<b>Monoxide).....</b>		
Ozone.....		
.....		

### General Industry Standards

CHEMICAL NAME	CAS*	TQ**
Pentaborane.....	1962	100
.....	4-22-	1000
Peracetic Acid (concentration >60% Acetic Acid; also called Peroxyacetic Acid).....	7	5000
.....	79-	150
Perchloric Acid (concentration >60% by weight).....	21-0	5000
.....	7601-	1000
Perchloromethyl Mercaptan.....	90-3	100
.....	594-	100
Perchloryl Fluoride.....	42-3	1000
.....	7616-	1000
Peroxyacetic Acid (concentration >60% Acetic Acid; also called Peracetic Acid).....	94-6	1000
.....	79-	100
Phosgene (also called Carbonyl Chloride).....	21-0	2500
.....	75-	100
Phosphine (Hydrogen Phosphide).....	44-5	1000
.....	7803-	500
Phosphorus Oxychloride (also called Phosphoryl Chloride).....	51-2	1000
.....	1002	250
Phosphorus Trichloride.....	5-87-	250
.....	3	1000
Phosphoryl Chloride (also called Phosphorus Oxychloride).....	7719-	1000
.....	12-2	250
Propargyl Bromide.....	1002	5000
.....	5-87-	5000
Propyl Nitrate.....	3	1000
.....	106-	250
.....	96-7	100
Sarin.....	627-	2500
.....	3-4	5000
Selenium Hexafluoride.....	107-	1000
.....	44-8	0
Stibine (Antimony Hydride).....	7783-	1500
.....	79-1	
Sulfur Dioxide (liquid).....	7803-	
.....	52-3	
Sulfur Pentafluoride.....	7446-	
.....	09-5	

<b>BRIESER CONSTRUCTION GENERAL CONTRACTORS</b>		DATE:	PROCEDURE:
		4-17-13	TBD
<b>CORPORATE SAFETY, HEALTH &amp; ENVIRONMENTAL MANUAL</b>		Revision:	PAGE:
		02	10
STANDARD OPERATING PROCEDURE:		<b>Process Safety Management - PSM</b>	
CROSS REFERENCE:	<b>29 CFR 1926.64 Process safety management of highly hazardous chemicals</b>		

..... <b>Sulfur</b>	<b>5714- 22-7</b>	
<b>Tetrafluoride</b> .....	<b>7783- 60-0</b>	
..... <b>Sulfur Trioxide (also called Sulfuric Anhydride)</b> .....	<b>7446- 11-9</b>	
<b>Sulfuric Anhydride (also called Sulfur Trioxide)</b> .....	<b>7446- 11-9</b>	
<b>Tellurium Hexafluoride</b> .....	<b>7783- 80-4</b>	
<b>Tetrafluoroethylene</b> .....	<b>116- 14-3</b>	
..... <b>Tetrafluorohydrazine</b> .....	<b>1003</b>	
..... <b>Tetramethyl</b>	<b>6-47-</b>	
<b>Lead</b> .....	<b>2</b>	
<b>Thionyl Chloride</b> .....	<b>75- 74-1</b>	
.... <b>Trichloro (chloromethyl) Silane</b> .....	<b>7719- 09-7</b>	
<b>Trichloro (dichlorophenyl) Silane</b> .....	<b>1558- 25-4</b>	
<b>Trichlorosilane</b> .....	<b>2713</b>	
..... <b>Trifluorochloroethylene</b> .....	<b>7-85- 5</b>	
..... <b>Trimethoxysilane</b> .....	<b>1002</b>	
.....	<b>5-78-</b>	
.....	<b>2</b>	
.....	<b>79-</b>	
.....	<b>38-9</b>	
.....	<b>2487-</b>	
.....	<b>90-3</b>	

\*Chemical Abstract Service Number.

\*\*Threshold Quantity in Pounds (Amount necessary to be covered by this standard).