



CITY OF GARDEN GROVE
FIRE DEPARTMENT

Tel: (714) 741-5600
Fax: (714) 741-5640

4/8/2016

Jim McElroy
Property Consultants
(714) 600-3001

RE: Records Search for 12472 Edison Way, Garden Grove CA

Dear Mr. McElroy:

Enclosed are the records found concerning the history of the above-mentioned site(s), especially as it pertains to fire code violation history, permits, the use, storage, or disposal of hazardous substances, and the installation or removal of underground flammable or combustible liquid storage tanks.

The City of Garden Grove Fire Department has utilized its best efforts to locate the records requested. However, the City makes no representation as to the accuracy of the records or that all records requested were retained or located. The City does not provide records on spills, leaks or clean-up, as that information is provided through the County of Orange Health Dept.

Sincerely,

A handwritten signature in black ink, appearing to read 'Thanh Nguyen', written over a horizontal line.

Thanh Nguyen
Fire Captain/Senior Fire Protection Specialist

**Violation List for
ISUZU
12472 EDISON Wy**

Date Issued	Date Cleared	Code #	Violation Description
11/10/2015	12/10/2015	CFC 105.3.5	Either Apply for a Welding Permit or discontinue Welding on the pre
11/10/2015	12/10/2015	NPFA 25	Post Sign on riser doors indicated that the Risers are locted inside.
11/10/2015	12/10/2015	Title 19, Sec.	5 yr. certification on sprinkler / standpipe system.

Max Daily Amount

Not Used/Used

Common Name ACETYLENE

Chemical Name ACETYLENE

Cas # 74-86-2

Location [REDACTED]

Map

356 Cubic Feet

Grid

Delete

Modify

Common Name ARGON

Chemical Name ARGON

Cas # 7440-37-1

Location [REDACTED]

Map

381 Cubic Feet

Grid

Delete

Modify

Common Name BIO DIESIL BLEND

Chemical Name BIO DIESIL BLEND

Cas # 68476-34-6

Location [REDACTED]

Map

55 Gallons

Grid

Delete

Modify

Common Name ENGINE OIL

Chemical Name ENGINE OIL

Cas #

Location [REDACTED]

Map

55 Gallons

Grid

Delete

Modify

Common Name HYDROGEN/NITROGEN

Chemical Name HYDROGEN/NITROGEN

Cas # 7727-37-9

Location [REDACTED]

Map

381 Cubic Feet

Grid

Delete

Modify

Common Name MOTOR OIL

Chemical Name MOTOR OIL

Cas #

Location [REDACTED]

Map

55 Gallons

Grid

Delete

Modify

Common Name OXYGEN

Chemical Name OXYGEN

Cas # 7782-44-7

Location [REDACTED]

Map

337 Cubic Feet

Grid

Delete

Modify

Common Name UREA LIQOUR

Chemical Name UREA LIQOUR

Cas # 9664-41-7

Location [REDACTED]

Map

110 Gallons

Grid

Delete

Modify

Common Name USED ANTIFREEZE

Chemical Name USED ANTIFREEZE

Cas #

Location [REDACTED]

Map

55 Gallons

Grid

Delete

Modify

Common Name USED OIL

Chemical Name USED OIL

Cas #

Location [REDACTED]

Map

55 Gallons

Grid

Delete

Modify

Dbna PRIMAL ELEMENTS

Complex

Address

12472

EDISON

WY

92841

Business Information

Business License No. 127938

Dunn and Bradstreet -

Sic Code-

Fax

E-Mail

Business Owner Name PRIMAL ELEMENTS Home Phone

Construction Information

Construction type-

Occupany group- S2

Occupany Load- 0

Building Sq.ft- 0

Contacts Information

Property Owner

Building Owner

Contacts

Inspection Information

Deleted and Archived by VThorpe

File number 3474

Inspector-

Inspection History

Visits

Violations

Demits

Permits

EPS Information

Business Operator -

Phone -

Environmental Contact -

phone -

address - ,

Chemical Information

Tank Information

Disclosure Local Information

Invoices

External Invoices

Notes

DbA PRIMAL ELEMENTS

Complex

Address

12472

EDISON

Wy

92841

Business Information

Business License No.

Dunn and Bradstreet -

Sic Code- 2841

Fax

E-Mail

Business Owner Name SCOTT FREEMAN

Home Phone 7148990757

Property Use

Construction Information

Construction type-

Occupany group-

Occupany Load- 0

Building Sq.ft- 0

Lock box Type - 3200 box- structural Location - PRIMAL ELEMENTS - 12472 EDISON WAY

Lock box Type - Vehicular Padlock Location - PRIMAL ELEMENTS - 12472 EDISON WAY

Contacts Information

Property Owner

KILROY

LONG BEACH ,

Building Owner

Contacts

Contact Type - Emergency One

CURTIS ALLEN Position/Title -OPS DIRECTOR

Office 7148990757

Home 7143281313

Mobile 5629267724

Contact Type - Emergency Primary

RICHARD STURT Position/Title -V-P

Office 7148990757

Mobile 7147156950

Contact Type - Emergency Secondary

Contact Type - Emergency Secondary
CURTIS ALLEN Position/Title -DIRECTOR OF OPS
Office 7148990757
Mobile

Contact Type - Business Owner
SCOTT FREEMAN Position/Title -Business Owner
Home 7148990757
Mobile

12472 EDISON Wy
GARDEN GROVE, CA 92841
Contact Type - Business Operator
CURTIS ALLEN Position/Title -Business Operator
Office 7148990757

Contact Type - Environmental
CURTIS ALLEN Position/Title -Environmental Contact
Office 7148990757

12472 EDISON WAY
GARDEN GROVE, CA 92841
Contact Type - Property Owner
KILROY Position/Title -Property Owner
Office
Mobile

LONG BEACH,
Contact Type - Inspection
CURTIS ALLEN Position/Title -Inspection Contact
Office

Inspection Information

Archived by VThorpe
File number 411
Inspector- FPB N

Inspection History

09/20/2006 Time 11:08

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Life Safety Inspection

Notes - System generated Life Safety inspection printed for - Inspector FPB shift N FPB

09/08/2003 Time 09:33

Employee No. - 6691Name - Valerie Thorpe

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10/06/2006 Time 08:38

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Notes - System generated Life Safety inspection printed for - Inspector FPB shift N FPB

12/01/2003 Time 08:01

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Action Performed - Permit Invoice

Notes - Permit Invoice Printed

12/19/2003 Time 10:23

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Fire Code Permit

Notes - Fire Code Permit printed for a paid Invoice

02/11/2004 Time 08:31

Employee No. - 6691Name - Valerie Thorpe

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Notes - Inspection cleared using Status field on input form- Inspector 2512 Susan Waidelich by Valerie Thorpe

12/15/2005 Time 08:20

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11/11/2004 Time 09:37

Employee No. - 6691Name - Valerie Thorpe

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Notes - Inspection cleared using Status field on input form- Inspector 0910 Nathan Brady by Valerie Thorpe

12/01/2004 Time 07:53

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Permit Invoice

Notes - Permit Invoice Printed

12/17/2004 Time 07:49

Employee No. - 6691Name - Valerie Thorpe

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09/20/2006 Time 11:08

09/21/2005 Time 07:42

Employee No. - 6691Name - Valerie Thorpe

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11/10/2005 Time 09:09

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Inspection Cleared

Notes - Inspection cleared using Status field on input form- Inspector 2989 Justin Kuhns by Valerie Thorpe

12/01/2005 Time 09:02

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Permit Invoice

Notes - Permit Invoice Printed

10/02/2006 Time 10:00

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Life Safety Inspection

Notes - System generated Life Safety inspection printed for - Inspector FPB shift N FPB

10/02/2006 Time 10:05

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Life Safety Inspection

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11/20/2006 Time 08:54

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Inspection Cleared

Notes - Inspection cleared using Status field on input form- Inspector 3303 Sabrina Soltis by Valerie Thorpe

12/01/2006 Time 09:14

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Permit Invoice

Notes - Permit Invoice Printed

01/12/2007 Time 09:09

Employee No. - 6691Name - Valerie Thorpe

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Visits

11/24/2003

Inspector Id- 2512Name - Susan Waidelich

Insp. Type - Annual Life Safety

Category - Life Safety

Comments -

01/30/2004

Inspector Id- 2512Name - Susan Waidelich

Insp. Type -

Category - Life Safety

Comments - Mailback card returned

11/22/2003

10/28/2004
Inspector Id- 0910Name - Nathan Brady
Insp. Type - Annual Life Safety
Category - Life Safety
Comments -

11/11/2004
Inspector Id- 0910Name - Nathan Brady
Insp. Type -
Category - Life Safety
Comments - Mailback card returned

11/09/2005
Inspector Id- 2989Name - Justin Kuhns
Insp. Type - Annual Life Safety
Category - Life Safety
Comments - No violations.
- Kuhns / Record / Wohlfarth

12/08/2005
Inspector Id- 6956Name - Thomas Powell II
Insp. Type - Hazardous Materials Disclosure Inspection
Category - EPS
Comments - MADE CONTACT WITH CURTIS ALLAN, WALKED FACILITY, UNLOCKED A KNOX LOCK TO REPLACE CHAIN. NO VIOLATIONS

11/02/2006
Inspector Id- 3303Name - Sabrina Soltis
Insp. Type - Annual Life Safety
Category - Life Safety
Comments - (Subleasing corner of building to a moving company. Do we want to separate that as its own inspection?) I checked it this time and everything is fine. MBCC due 11/16

11/17/2006
Inspector Id- 3303Name - Sabrina Soltis
Insp. Type -
Category - Life Safety
Comments - Mailback card returned

08/16/2007
Inspector Id- 3781Name - Richard Hibbard
Insp. Type -
Category -
Comments - Closed Business.

Violations

11/24/2003
code no - 1001.5.1
Description - Provide hose racks (2) in warehouse area.

10/28/2004
code no - CFC 1212.4
Description - Provide illuminated exit sign(s).- South exit / outside

11/02/2006

code no -
Description - Replace ceiling tile in upstairs classroom.

11/02/2006

code no -
Description - Locate Haz-Mat pack4et or go to station 1 and pick up copy.

Permits

Permit No- 801031
Permit description- HAZARDOUS MATERIALS - use, handling or storage

Permit No- 811031
Permit description- HIGH-PILED COMBUSTIBLE STOCK

EPS Information

Business Operator - CURTIS ALLEN
Phone - 7148990757
Environmental Contact - CURTIS ALLEN
phone - 7148990757
address - 12472 EDISON WAY , GARDEN GROVE CA 92841

Chemical Information

Chemical Name - ODORIZER-CHEMICAL MXI
Common name - COCONUT ODORIZER

Chemical Name - PIGMENT- CELLINI BLUE
Common name - MEARL PIGMENT

Chemical Name - INORGANIC PIGMENT
Common name - COLOR PIGMENT

Chemical Name - ISOPROPYL ALCOHOL
Common name - ISOPROPYL ALCOHOL

Tank Information

Tank Owner Name -
Phone -
Address-

Disclosure Local Information

Date Disclosure was verified 00/00/00
Disclosure letter verified by
Date Inquiry letter Sent 00/00/00
Date New Business Packet Sent 00/00/00
Date New Business Packet Received 00/00/00

Date Year end packet sent 00/00/00
Date Year end packet Received 00/00/00
Date Year end Packet Approved 00/00/00
Citation Date 00/00/00
City Attorney Letter sent Date 00/00/00
Date BEP sent 00/00/00
Date BEP Submitted 00/00/00
Date BEP Corrected 00/00/00
Date BEP Approved 00/00/00
Business was not in the Cal Arp program
Number of Employee 31+
Local ID Number

Invoices

Date Billed 01/30/2003
Bill type - Chemical/Tank
Total Due \$500.00
Amount Paid - \$500.00
Balance Due -\$0.00

Items

>30,000 gallons, >3000 lbs., >3000 cu ft of compressed gas, +31 Employees - \$500.00

Date Billed 12/01/2003
Bill type - Permit Bill
Total Due \$75.00
Amount Paid - \$75.00
Balance Due -\$0.00

Items

HAZARDOUS MATERIALS - use, handling or storage - \$.00

HIGH-PILED COMBUSTIBLE STOCK - \$75.00

Date Billed 12/01/2004
Bill type - Permit Bill
Total Due \$75.00
Amount Paid - \$75.00
Balance Due -\$0.00

Items

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Total Due \$75.00

Amount Paid - \$75.00

Balance Due -\$.00

Items

HAZARDOUS MATERIALS - use, handling or storage - \$.00

HIGH-PILED COMBUSTIBLE STOCK - \$75.00

External Invoices

Notes

DbA PRIMAL ELEMENTS

Complex

Address

12472

EDISON

Wy

92841

Business Information

Business License No.

Dunn and Bradstreet -

Sic Code- 2841

Fax

E-Mail

Business Owner Name SCOTT FREEMAN

Home Phone 7148990757

Property Use

Construction Information

Construction type-

Occupany group-

Occupany Load- 0

Building Sq.ft- 0

Lock box Type - 3200 box- structural Location - PRIMAL ELEMENTS - 12472 EDISON WAY

Lock box Type - Vehicular Padlock Location - PRIMAL ELEMENTS - 12472 EDISON WAY

Contacts Information

Property Owner

KILROY

LONG BEACH ,

Building Owner

Contacts

Contact Type - Emergency One

CURTIS ALLEN Position/Title -OPS DIRECTOR

Office 7148990757

Home 7143281313

Mobile 5629267724

Contact Type - Emergency Primary

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12472 EDISON WAY
GARDEN GROVE, CA 92841
Contact Type - Property Owner
KILROY Position/Title -Property Owner
Office
Mobile

LONG BEACH,
Contact Type - Inspection
CURTIS ALLEN Position/Title -Inspection Contact
Office

Inspection Information

Archived by VThorpe
File number 411
Inspector- FPB N

Inspection History

09/20/2006 Time 11:08

Employee No. - 6691Name - Valerie Thorpe

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09/08/2003 Time 09:33

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09/24/2005 Time 07:40

09/27/2005 Time 07:42

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11/10/2005 Time 09:09

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Category - Life Safety

Comments -

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Insp. Type -

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Comments - Mailback card returned

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Comments -

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Chemical Name - ISOPROPYL ALCOHOL
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Tank Information

Tank Owner Name -
Phone -
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Disclosure Local Information

Date Disclosure was verified 00/00/00
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Date Year end packet sent 00/00/00
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Date Year end Packet Approved 00/00/00
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EDISON

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Construction type-

Occupany group-

Occupany Load- 0

Building Sq.ft- 0

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Lock box Type - Vehicular Padlock Location - PRIMAL ELEMENTS - 12472 EDISON WAY

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Employee No. - 6691Name - Valerie Thorpe

Action Performed - Life Safety Inspection

Notes - System generated Life Safety inspection printed for - Inspector FPB shift N FPB

11/11/2004 Time 09:37

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Inspection Cleared

Notes - Inspection cleared using Status field on input form- Inspector 0910 Nathan Brady by Valerie Thorpe

12/01/2004 Time 07:53

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Permit Invoice

Notes - Permit Invoice Printed

12/17/2004 Time 07:49

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Fire Code Permit

Notes - Fire Code Permit printed for a paid Invoice

09/20/2006 Time 11:08

09/21/2005 Time 07:42

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Life Safety Inspection

Notes - System generated Life Safety inspection printed for - Inspector FPB shift N FPB

11/10/2005 Time 09:09

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Inspection Cleared

Notes - Inspection cleared using Status field on input form- Inspector 2989 Justin Kuhns by Valerie Thorpe

12/01/2005 Time 09:02

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Permit Invoice

Notes - Permit Invoice Printed

10/02/2006 Time 10:00

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Life Safety Inspection

Notes - System generated Life Safety inspection printed for - Inspector FPB shift N FPB

10/02/2006 Time 10:05

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Life Safety Inspection

Notes - System generated Life Safety inspection printed for - Inspector FPB shift N FPB

11/20/2006 Time 08:54

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Inspection Cleared

Notes - Inspection cleared using Status field on input form- Inspector 3303 Sabrina Soltis by Valerie Thorpe

12/01/2006 Time 09:14

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Permit Invoice

Notes - Permit Invoice Printed

01/12/2007 Time 09:09

Employee No. - 6691Name - Valerie Thorpe

Action Performed - Fire Code Permit

Notes - Fire Code Permit printed for a paid Invoice

Visits

11/24/2003

Inspector Id- 2512Name - Susan Waidelich

Insp. Type - Annual Life Safety

Category - Life Safety

Comments -

01/30/2004

Inspector Id- 2512Name - Susan Waidelich

Insp. Type -

Category - Life Safety

Comments - Mailback card returned

10/28/2004

Inspector Id- 0910Name - Nathan Brady

Insp. Type - Annual Life Safety

Category - Life Safety

Comments -

11/11/2004

Inspector Id- 0910Name - Nathan Brady

Insp. Type -

Category - Life Safety

Comments - Mailback card returned

11/09/2005

Inspector Id- 2989Name - Justin Kuhns

Insp. Type - Annual Life Safety

Category - Life Safety

Comments - No violations.

- Kuhns / Record / Wohlfarth

12/08/2005

Inspector Id- 6956Name - Thomas Powell II

Insp. Type - Hazardous Materials/ Disclosure Inspection

Category - EPS

Comments - MADE CONTACT WITH CURTIS ALLAN, WALKED FACILITY, UNLOCKED A KNOX LOCK TO REPLACE CHAIN. NO VIOLATIONS

11/02/2006

Inspector Id- 3303Name - Sabrina Soltis

Insp. Type - Annual Life Safety

Category - Life Safety

Comments - (Subleasing corner of building to a moving company. Do we want to separate that as its own inspection?) I checked it this time and everything is fine. MBCC due 11/16

11/17/2006

Inspector Id- 3303Name - Sabrina Soltis

Insp. Type -

Category - Life Safety

Comments - Mailback card returned

08/16/2007

Inspector Id- 3781Name - Richard Hibbard

Insp. Type -

Category -

Comments - Closed Business.

Violations

11/24/2003

code no - 1001.5.1

Description - Provide hose racks (2) in warehouse area.

10/28/2004

code no - CFC 1212.4

Description - Provide illuminated exit sign(s).- South exit / outside

11/02/2006

code no -

Description - Replace ceiling tile in upstairs classroom.

11/02/2006

code no -

Description - Locate Haz-Mat pack4et or go to station 1 and pick up copy.

Permits

Permit No- 801031

Permit description- HAZARDOUS MATERIALS - use, handling or storage

Permit No- 811031

Permit description- HIGH-PILED COMBUSTIBLE STOCK

EPS Information

Business Operator - CURTIS ALLEN

Phone - 7148990757

Environmental Contact - CURTIS ALLEN

phone - 7148990757

address - 12472 EDISON WAY , GARDEN GROVE CA 92841

Chemical Information

Chemical Name - ODORIZER-CHEMICAL MXI

Common name - COCONUT ODORIZER

Chemical Name - PIGMENT- CELLINI BLUE

Common name - MEARL PIGMENT

Chemical Name - INORGANIC PIGMENT

Common name - COLOR PIGMENT

Chemical Name - ISOPROPYL ALCOHOL

Common name - ISOPROPYL ALCOHOL

Tank Information

Tank Owner Name -

Phone -

Address-

Disclosure Local Information

Date Disclosure was verified 00/00/00

Disclosure letter verified by

Date Inquiry letter Sent 00/00/00

Date New Business Packet Sent 00/00/00

Date New Business Packet Received 00/00/00

Date Year end packet sent 00/00/00
Date Year end packet Received 00/00/00
Date Year end Packet Approved 00/00/00
Citation Date 00/00/00
City Attorney Letter sent Date 00/00/00
Date BEP sent 00/00/00
Date BEP Submitted 00/00/00
Date BEP Corrected 00/00/00
Date BEP Approved 00/00/00
Business was not in the Cal Arp program
Number of Employee 31+
Local ID Number

Invoices

Date Billed 01/30/2003
Bill type - Chemical/Tank
Total Due \$500.00
Amount Paid - \$500.00
Balance Due -\$.00

Items

>30,000 gallons, >3000 lbs., >3000 cu ft of compressed gas, +31 Employees - \$500.00

Date Billed 12/01/2003
Bill type - Permit Bill
Total Due \$75.00
Amount Paid - \$75.00
Balance Due -\$.00

Items

HAZARDOUS MATERIALS - use, handling or storage - \$.00

HIGH-PILED COMBUSTIBLE STOCK - \$75.00

Date Billed 12/01/2004
Bill type - Permit Bill
Total Due \$75.00
Amount Paid - \$75.00
Balance Due -\$.00

Items

HAZARDOUS MATERIALS - use, handling or storage - \$.00

HIGH-PILED COMBUSTIBLE STOCK - \$75.00

Date Billed 12/01/2005
Bill type - Permit Bill
Total Due \$75.00
Amount Paid - \$75.00
Balance Due -\$.00
Items

HAZARDOUS MATERIALS - use, handling or storage - \$.00

HIGH-PILED COMBUSTIBLE STOCK - \$75.00

Date Billed 12/01/2006

Bill type - Permit Bill

Total Due \$75.00

Amount Paid - \$75.00

Balance Due -\$.00

Items

HAZARDOUS MATERIALS - use, handling or storage - \$.00

HIGH-PILED COMBUSTIBLE STOCK - \$75.00

External Invoices

Notes

Inspection # :003300 1.Insp_Date:05-17-00
2. Permit # :
3. Address :12472 EDISON WY
4. Business Name/DBA :PRIMAL ELEMENTS
5. Address Info : 6.Buslic :127938
7. Business Owner :PRIMAL ELEMENTS
8. Business Address :12472 EDISON WY 10.Bus Phone899-0757
9. Business CityStZip:GARDEN GROVE CA 92845 11.EmerPhone894-2656

12.Occ Group :S2 16.5yr Cert. :4/26/95 20.MBCC :
13.Occ Load : 17.FDC loc :EDISON 21.Clear date :05-17-00
14.No of Ext :23.23 18.Haz Mat'l :N 22.InspectorId:0359
15.Sprinklers:Y 19.ReInsp date: BARANGER, JOHN D

=====

Violation Code Violation description

=====

1 NO VIOLATIONS

Inspection # :013262 1.Insp_Date:06-27-01
2. Permit # :
3. Address :12472 EDISON WY
4. Business Name/DBA :PRIMAL ELEMENTS
5. Address Info : 6.Buslic :127938
7. Business Owner :PRIMAL ELEMENTS
8. Business Address :12472 EDISON WY 10.Bus Phone899-0757
9. Business CityStZip:GARDEN GROVE CA 92845 11.EmerPhone894-2656

12.Occ Group :S2 16.5yr Cert. :4-18-99 20.MBCC :N
13.Occ Load : 17.FDC loc :EDISON 21.Clear date :06-27-01
14.No of Ext :23.23 18.Haz Mat'l :N 22.InspectorId:2475

15.Sprinklers:Y 19.ReInsp date: DUMAS, WILLIAM T

=====

Violation Code Violation description

====

1 NO VIOLATIONS

Inspection # :023231 1.Insp_Date:
2. Permit # :
3. Address :12472 EDISON WY
4. Business Name/DBA :PRIMAL ELEMENTS
5. Address Info : 6.Buslic :127938
7. Business Owner :PRIMAL ELEMENTS
8. Business Address :12472 EDISON WY 10.Bus Phone899-0757
9. Business CityStZip:GARDEN GROVE CA 92845 11.EmerPhone894-2656

12.Occ Group :S2 16.5yr Cert. :4-18-99 20.MBCC :
13.Occ Load : 17.FDC loc :EDISON 21.Clear date :
14.No of Ext :23.23 18.Haz Mat'l :N 22.InspectorId:
15.Sprinklers:Y 19.ReInsp date:

=====

Violation Code Violation description

====

1

Inspection # :934541 1.Insp_Date:05-11-93
2. Permit # :
3. Address :12472 EDISON WY

4. Business Name/DBA :GEM PRODUCTS,INC
5. Address Info : 6.Buslic :127938
7. Business Owner :GENERAL ELECTRIC
8. Business Address :12472 EDISON WY 10.Bus Phone372-9619
9. Business CityStZip:GARDEN GROVE CA 92845 11.EmerPhone372-9628

12.Occ Group :B2 16.5yr Cert. :4-6-90 20.MBCC :
13.Occ Load : 17.FDC loc :EDISON 21.Clear date :05-11-93
14.No of Ext :23.23 18.Haz Mat'l : 22.InspectorId:0179
15.Sprinklers:Y 19.ReInsp date: ANDRADE, JOHN

=====

Violation Code Violation description

====

1

Inspection # :944339 1.Insp_Date:05-11-94
2. Permit # :
3. Address :12472 EDISON WY
4. Business Name/DBA :GEM PRODUCTS,INC
5. Address Info : 6.Buslic :127938
7. Business Owner :GENERAL ELECTRIC
8. Business Address :12472 EDISON WY 10.Bus Phone372-9619
9. Business CityStZip:GARDEN GROVE CA 92845 11.EmerPhone372-9628

12.Occ Group :B2 16.5yr Cert. :4-6-90 20.MBCC :
13.Occ Load : 17.FDC loc :EDISON 21.Clear date :05-11-94
14.No of Ext :23.23 18.Haz Mat'l : 22.InspectorId:9034
15.Sprinklers:Y 19.ReInsp date: VIZE, TIMOTHY A

=====

Violation Code Violation description

=====

1 NO VIOLATIONS NOTED

Inspection # :954089 1.Insp_Date:04-26-95
2. Permit # :
3. Address :12472 EDISON WY
4. Business Name/DBA :GEM PRODUCTS,INC
5. Address Info : 6.Buslic :127938
7. Business Owner :GENERAL ELECTRIC
8. Business Address :12472 EDISON WY 10.Bus Phone372-9619
9. Business CityStZip:GARDEN GROVE CA 92845 11.EmerPhone372-9628

12.Occ Group :B2 16.5yr Cert. :4/26/95 20.MBCC :N
13.Occ Load : 17.FDC loc :EDISON 21.Clear date :04-26-95
14.No of Ext :23.23 18.Haz Mat'l : 22.InspectorId:0790
15.Sprinklers:Y 19.ReInsp date: BOJORQUEZ, TRINO

=====

Violation Code Violation description

=====

1 NONE

Inspection # :963705 1.Insp_Date:04-16-96
2. Permit # :
3. Address :12472 EDISON WY
4. Business Name/DBA :GEM PRODUCTS,INC
5. Address Info : 6.Buslic :127938
7. Business Owner :GENERAL ELECTRIC

8. Business Address :12472 EDISON WY 10. Bus Phone 372-9619
9. Business CityStZip: GARDEN GROVE CA 92845 11. EmerPhone 891-1623

12. Occ Group :S2 16. 5yr Cert. :4/26/95 20. MBCC :
13. Occ Load : 17. FDC loc : EDISON 21. Clear date :04-16-96
14. No of Ext :23.23 18. Haz Mat'l :Y 22. InspectorId:2821
15. Sprinklers:Y 19. ReInsp date: FERGUSON, B BRENT

=====

Violation Code Violation description

=====

1 NO VIOLATIONS

Inspection # :973420 1. Insp_Date:06-24-97
2. Permit # :
3. Address :12472 EDISON WY
4. Business Name/DBA :GEM PRODUCTS,INC
5. Address Info : 6. Buslic :127938
7. Business Owner :GENERAL ELECTRIC
8. Business Address :12472 EDISON WY 10. Bus Phone 372-9619
9. Business CityStZip: GARDEN GROVE CA 92845 11. EmerPhone 891-1623

12. Occ Group :S2 16. 5yr Cert. :4/26/95 20. MBCC :
13. Occ Load : 17. FDC loc : EDISON 21. Clear date :06-24-97
14. No of Ext :23.23 18. Haz Mat'l :Y 22. InspectorId:9034
15. Sprinklers:Y 19. ReInsp date: VIZE, TIMOTHY A

=====

Violation Code Violation description

=====

1 NO VIOLATIONS

Inspection # :983349 1.Insp_Date:09-22-98
2. Permit # :
3. Address :12472 EDISON WY
4. Business Name/DBA :GEM PRODUCTS,INC
5. Address Info : 6.Buslic :127938
7. Business Owner :GENERAL ELECTRIC
8. Business Address :12472 EDISON WY 10.Bus Phone372-9619
9. Business CityStZip:GARDEN GROVE CA 92845 11.EmerPhone891-1623

12.Occ Group :S2 16.5yr Cert. :4/26/95 20.MBCC :
13.Occ Load : 17.FDC loc :EDISON 21.Clear date :09-22-98
14.No of Ext :23.23 18.Haz Mat'l :Y 22.InspectorId:2475
15.Sprinklers:Y 19.ReInsp date: DUMAS, WILLIAM T

=====
Violation Code Violation description
=====

1 NO VIOLATIONS

Inspection # :993327 1.Insp_Date:05-12-99
2. Permit # :
3. Address :12472 EDISON WY
4. Business Name/DBA :GEM PRODUCTS,INC
5. Address Info : 6.Buslic :127938
7. Business Owner :GENERAL ELECTRIC
8. Business Address :12472 EDISON WY 10.Bus Phone372-9619
9. Business CityStZip:GARDEN GROVE CA 92845 11.EmerPhone891-1623

12.Occ Group :S2 16.5yr Cert. :4/26/95 20.MBCC :
13.Occ Load : 17.FDC loc :EDISON 21.Clear date :05-12-99
14.No of Ext :23.23 18.Haz Mat'l :Y 22.InspectorId:4607

15.Sprinklers:Y 19.ReInsp date: KINGMAN, LEWIS E

=====

Violation Code Violation description

=====

1 NO VIOLATIONS

GARDEN GROVE



FIRE DEPARTMENT

HAZARDOUS MATERIALS DISCLOSURE PROGRAM

REPORTING FORMS PACKET

SHORT VERSION

FOR OFFICIAL USE ONLY	
FACILITY ID NO.	<u>8677</u>
BUSINESS NAME	<u>Orzuze</u>
BUSINESS ADDRESS	<u>12472 Edison Way</u>
APPROVED BY	<u>G</u> DATE <u>8/2011</u>
NEW BUSINESS	<input type="checkbox"/> YES <input type="checkbox"/> NO UPDATE _____
PICK	<u>4D</u> BUSLIST <u> </u> CALARP: <u> </u> CUPA: <u> </u> GIS <u> </u>
FEE	_____



HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

#1

ADD DELETE REVISED 1

Page 3 of 17 2

FACILITY ID: 30035 BUSINESS NAME: ISUZU Manufacturing Services of America

I. FACILITY INFORMATION

CHEMICAL LOCATION: [REDACTED]

CONFIDENTIAL LOCATION EPCRA: Yes No 5 MAP # #1 M 6 GRID # 3-F 7

II. CHEMICAL INFORMATION

CHEMICAL NAME: UREA LIQUOR WASTE Yes 8 TRADE SECRET Yes No 11

COMMON NAME: UREA Solution & Solution for SCR NOx 9 An EHS Chemical Yes No 12

CAS # 57-13-6 1111-78-0 7664-41-7 108-19-0 7732-18-5 10 FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

a. PURE b. MIXTURE c. WASTE 14 RADIOACTIVE Yes No 15 CURIES 16

PHYSICAL STATE: a. SOLID b. LIQUID c. GAS 17 FEDERAL HAZARD CATEGORIES: a. FIRE b. REACTIVE c. PRESSURE RELEASE d. ACUTE HEALTH e. CHRONIC HEALTH 18

AVERAGE DAILY AMOUNT: 55 GAL Drum 19 MAXIMUM DAILY AMOUNT: 110 Gallons 20 ANNUAL WASTE AMOUNT: 0 21 STATE WASTE CODE: 22

UNITS: a. GALLONS b. CUBIC FEET c. POUNDS d. TONS 23 DAYS ON SITE: 365 24 LARGEST CONTAINER: 55 Gallon Drum 25

STORAGE CONTAINER: a. ABOVEGROUND TANK b. UNDERGROUND TANK c. TANK INSIDE BLDG d. STEEL DRUM e. PLASTIC DRUM f. NONMETALLIC DRUM g. METAL CONTAINER h. CARBOY i. VAT j. FIBER DRUM k. BAG(S) l. BOX(S) m. CYLINDER n. GLASS CONTAINER o. PLASTIC CONTAINER p. IN MACH OR EQUIP q. TANK WAGON r. RAIL CAR s. TOTE BIN t. OTHER 26

STORAGE PRESSURE: a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT 27

STORAGE TEMPERATURE: a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC 28

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1 85%	UREA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	57-13-6
2 1.0%	FREE AMMONIA	<input type="checkbox"/> Yes <input type="checkbox"/> No	7664-41-7
3 0.5%	BIVRET	<input type="checkbox"/> Yes <input type="checkbox"/> No	108-19-0
4 0.5%	AMMONIUM	<input type="checkbox"/> Yes <input type="checkbox"/> No	1111-78-0
5 69.7%	Water	<input type="checkbox"/> Yes <input type="checkbox"/> No	7732-18-5

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

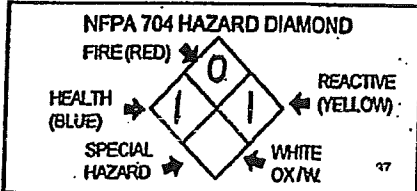
PLACARDING INFORMATION

UNDOT # _____ 33 Refer to shipping papers or MSDS

DOT HAZARD CLASS _____ 34 Refer to shipping papers or MSDS

EPCRA YES NO 35

X _____ 36 If EPCRA, Please Sign Here



MAKE AS MANY COPIES OF CHEMICAL INVENTORY FORM AS NEEDED



CITY OF GARDEN GROVE FIRE DEPARTMENT

11301 Acacia Parkway, Garden Grove, CA 92842 (714) 741-5600 (714) 741-5636

FORM 1

Hazardous Materials Business Information Form

Page 1 of 17 3

BUSINESS INFORMATION

FACILITY (Supplied by CERD) 3 0 0 3 5				BEGINNING DATE 1	ENDING DATE 2
				3/28/2011	12/31/2011
BUSINESS NAME 4				BUSINESS PHONE 5	
Isuzu Manufacturing Services of America, Inc.				714-935-9444	
BUSINESS SITE ADDRESS 6					
12472 Edison way					
CITY 7			STATE 8	ZIP 9	
GARDEN GROVE			CA	92841	
DUN & BRADSTREET 10		SIC CODE (4 DIGIT #) 11		FIRE DISTRICT 12	
		5010			
COUNTY 13					
ORANGE					
BUSINESS OPERATOR NAME 14				OPERATOR'S PHONE 15	
Terri Wanland				714-935-9444	

BUSINESS OWNER

OWNER NAME 16				OWNER PHONE 17	
Isuzu Manufacturing Services of America, Inc.				714-935-9444	
OWNER MAILING ADDRESS 18					
1400 S. Douglass Road, Suite 100					
CITY 19			STATE 20	ZIP 21	
Anaheim			CA	92806	

ENVIRONMENTAL CONTACT

CONTACT NAME 22				CONTACT PHONE 23	
Terri Wanland				714-935-9444	
CONTACT MAILING ADDRESS 24					
1400 S. Douglass Road, Suite 100					
CITY 25			STATE 26	ZIP 27	
Anaheim			CA	92806	

PRIMARY

EMERGENCY CONTACTS

SECONDARY

NAME 28	Manuel Garcia	NAME 33	Terri Wanland
TITLE 29	Facilities	TITLE 34	Vice President, Human Resources & Corp. operations
BUSINESS PHONE 30	(714) 935-9347	BUSINESS PHONE 35	714-935-9444
24-HR. PHONE 31	[REDACTED]	24-HR. PHONE 36	[REDACTED]
PAGER # 32	—	PAGER # 37	—

ADDITIONAL LOCALLY COLLECTED INFORMATION

DESCRIBE THE TYPE OF BUSINESS OPERATION: 38			TOTAL # OF EMPLOYEES 39	
Vehicle testing & evaluation			7	
BILLING ADDRESS (IF DIFFERENT FROM ABOVE) 40			ATTENTION 41	
1400 S. Douglass Road, Suite 100, Anaheim, CA 92806			Terri Wanland	
PROPERTY OWNER NAME 42	ADDRESS 43	PHONE 44		
Kirroy Realty Corp.	12200 W. Olympic Blvd, Suite 200, Los Angeles, CA 90064	(310) 481-8900		
Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete.				
SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE 45			DATE 46	
Terri Wanland			8/8/11	
NAME OF SIGNER (print) 47		NAME OF DOCUMENT PREPARER (print) 49		
Terri Wanland		Paola Thompson		
TITLE OF SIGNER 48		TITLE OF DOCUMENT PREPARER 50		
Vice President, Human Resources & Corporate Operations		Benefits & HRIS Supervisor		



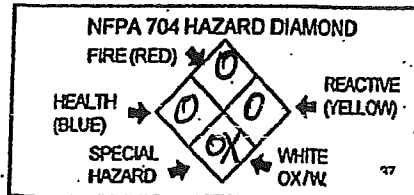
HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

#2

 ADD DELETE REVISED 1Page 5 of 17 2FACILITY ID# 30035 BUSINESS NAME ISUZU Manufacturing Services of America**I. FACILITY INFORMATION**CHEMICAL LOCATION Machine ShopCONFIDENTIAL LOCATION EPCRA Yes No 5 MAP# #2 GRID# 4-I 7**II. CHEMICAL INFORMATION**CHEMICAL NAME Oxygen Compressed WASTE Yes No 8 TRADE SECRET Yes No 11
* If EPCRA see instructionsCOMMON NAME Oxygen 9 An EHS Chemical Yes No 12
* If EHS is "Yes", all amounts must be LBSCAS# 7782-44-7 10 FIRE CODE HAZARD CLASSES (supplied by GGGFD) 13TYPE OF CHEMICAL a. PURE b. MIXTURE c. WASTE 14 RADIOACTIVE Yes No 15 CURIES 16PHYSICAL STATE a. SOLID b. LIQUID c. GAS 17 HAZARD CATEGORIES a. FIRE b. REACTIVE c. PRESSURE RELEASE 18
 d. ACUTE HEALTH e. CHRONIC HEALTHAVERAGE DAILY AMOUNT 337 19 MAXIMUM DAILY AMOUNT 337 20 ANNUAL WASTE AMOUNT 21 STATE WASTE CODE 22UNITS a. GALLONS b. CUBIC FEET 23 DAYS ON SITE 365 24 LARGEST CONTAINER 337 cf cylinder 25
 c. POUNDS d. TONS
* If EHS, amount must be in pounds.STORAGE CONTAINER a. ABOVEGROUND TANK e. PLASTIC DRUM i. VAT m. CYLINDER q. TANK WAGON 26
 b. UNDERGROUND TANK f. NONMETALLIC DRUM l. FIBER DRUM n. GLASS CONTAINER r. RAIL CAR
 c. TANK INSIDE BLDG g. METAL CONTAINER o. PLASTIC CONTAINER s. TOTE BIN
 d. STEEL DRUM h. CARBOY l. BAG(S) p. IN MACH OR EQUIP t. OTHERSTORAGE PRESSURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT 27STORAGE TEMPERATURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC 28

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
<u>1</u>	<u>>99%</u> <u>29</u> <u>Oxygen</u> <u>30</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <u>31</u>	<u>7782-44-7</u> <u>32</u>
<u>2</u>	<u>29</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No <u>31</u>	<u>32</u>
<u>3</u>	<u>29</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No <u>31</u>	<u>32</u>
<u>4</u>	<u>29</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No <u>31</u>	<u>32</u>
<u>5</u>	<u>29</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No <u>31</u>	<u>32</u>

*If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.***PLACARDING INFORMATION**UNDOT # UN1072 33
Refer to shipping papers or MSDSDOT HAZARD CLASS 2.2 34
Refer to shipping papers or MSDSEPCRA YES NO 35 X 36
If EPCRA, Please Sign Here

MAKE AS MANY COPIES OF CHEMICAL INVENTORY FORM AS NEEDED



HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

#3

ADD

DELETE

REVISED 1

Page 6 of 17 2

FACILITY ID	30035	BUSINESS NAME	TSOW Manufacturing Services of America
-------------	-------	---------------	--

I. FACILITY INFORMATION

CHEMICAL LOCATION
Machine Shop

CONFIDENTIAL LOCATION Yes No 5 MAP# #3 6 GRID# 4-I 7

II. CHEMICAL INFORMATION

CHEMICAL NAME MIXTURES of hydrogen & Nitrogen WASTE Yes 8 TRADE SECRET Yes No 11
*If EPCRA see instructions

COMMON NAME N.O.S. 9 An EHS Chemical Yes No 12
*If EHS is "Yes", all amounts must be LBS

CAS# See Below 10 FIRE CODE HAZARD CLASSES (supplied by GGFDF) 13

TYPE OF HAZARD a. PURE b. MIXTURE c. WASTE 14 RADIOACTIVE Yes No 15 CURIES 16

PHYSICAL STATE a. SOLID b. LIQUID c. GAS 17 HED HAZARD CATEGORIES a. FIRE b. REACTIVE c. PRESSURE RELEASE 18
 d. ACUTE HEALTH e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT 381 19 MAXIMUM DAILY AMOUNT 381 20 ANNUAL WASTE AMOUNT 0 21 STATE WASTE CODE 22

UNITS a. GALLONS b. CUBIC FEET 23 DAYS ON SITE 365 24 LARGEST CONTAINER 381 CF cylinder 25
 c. POUNDS d. TONS
*If EHS, amount must be in pounds.

STORAGE CONTAINER (Check all that apply) a. ABOVEGROUND TANK e. PLASTIC DRUM i. VAT m. CYLINDER q. TANK WAGON 26
 b. UNDERGROUND TANK f. NONMETALLIC DRUM l. FIBER DRUM n. GLASS CONTAINER r. RAIL CAR
 c. TANK INSIDE BLDG g. METAL CONTAINER o. PLASTIC CONTAINER s. TOTE BIN
 d. STEEL DRUM h. CARBOY j. BOX(S) p. IN MACH OR EQUIP t. OTHER

STORAGE PRESSURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT 27

STORAGE TEMPERATURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC 28

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1 1-PPM 29 5.7%	Hydrogen	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 31	1333-74-0 32
2 Balance 29	Nitrogen	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 31	7727-37-9 32
3 29		<input type="checkbox"/> Yes <input type="checkbox"/> No 31	32
4 29		<input type="checkbox"/> Yes <input type="checkbox"/> No 31	32
5 29		<input type="checkbox"/> Yes <input type="checkbox"/> No 31	32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

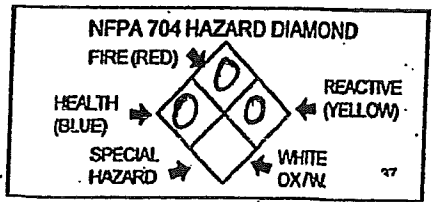
PLACARDING INFORMATION

UNDOT # UN1956 33
Refer to shipping papers or MSDS

DOT HAZARD CLASS 2.2 34
Refer to shipping papers or MSDS

EPCRA YES NO 35

X _____ 36
If EPCRA, Please Sign Here



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HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

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FACILITY ID: 30035 BUSINESS NAME: ISUZU manufacturing Services of America

I. FACILITY INFORMATION

CHEMICAL LOCATION: machine Shop

CONFIDENTIAL LOCATION EPCRA: Yes No 5 MAP# #4 6 GRID# 4-J 7

II. CHEMICAL INFORMATION

CHEMICAL NAME: ARGON, COMPRESSED WASTE Yes 8 TRADE SECRET Yes No 11
* If EPCRA see Instructions

COMMON NAME: Argon 9 An EHS Chemical Yes No 12
* If EHS is "Yes", all amounts must be LBS

CAS # 7440-37-1 10 FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

a. PURE b. MIXTURE c. WASTE 14 RADIOACTIVE Yes No 15 CURIES 16

PHYSICAL STATE: a. SOLID b. LIQUID c. GAS 17 HAZARD CLASSIFICATION: a. FIRE b. REACTIVE c. PRESSURE RELEASE 18
 d. ACUTE HEALTH e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT: 381 19 MAXIMUM DAILY AMOUNT: 381 20 ANNUAL WASTE AMOUNT: 0 21 STATE WASTE CODE 22

UNITS: a. GALLONS b. CUBIC FEET 23 DAYS ON SITE: 365 24 LARGEST CONTAINER: 381 CF cylinder 25
 c. POUNDS d. TONS
* If EHS, amount must be in pounds.

STORAGE CONTAINER: a. ABOVEGROUND TANK e. PLASTIC DRUM i. VAT m. CYLINDER q. TANK WAGON 26
 b. UNDERGROUND TANK f. NONMETALLIC DRUM j. FIBER DRUM n. GLASS CONTAINER r. RAIL CAR
 c. TANK INSIDE BLDG g. METAL CONTAINER k. BAG(S) o. PLASTIC CONTAINER s. TOTE BIN
 d. STEEL DRUM h. CARBOY l. BOX(S) p. IN MACH OR EQUIP t. OTHER

STORAGE PRESSURE: a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT 27

STORAGE TEMPERATURE: a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC 28

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	<u>>99%</u> <u>Argon</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 31	<u>7440-37-1</u> 32
2	29	<input type="checkbox"/> Yes <input type="checkbox"/> No 31	32
3	29	<input type="checkbox"/> Yes <input type="checkbox"/> No 31	32
4	29	<input type="checkbox"/> Yes <input type="checkbox"/> No 31	32
5	29	<input type="checkbox"/> Yes <input type="checkbox"/> No 31	32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

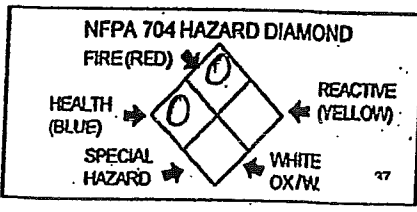
PLACARDING INFORMATION

UNDOT # UN1006 33
Refer to shipping papers or MSDS

DOT HAZARD CLASS 2.2 34
Refer to shipping papers or MSDS

EPCRA YES NO 35

X _____ 36
If EPCRA, Please Sign Here



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HAZARDOUS MATERIALS INVENTORY FORM

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FACILITY ID# 30035 BUSINESS NAME ISOZO Manufacturing Services of America

I. FACILITY INFORMATION

CHEMICAL LOCATION [REDACTED]

CONFIDENTIAL LOCATION EPCRA Yes No 5 MAP# #5 6 GRID# 3-J 7

II. CHEMICAL INFORMATION

CHEMICAL NAME USED Antifreeze WASTE Yes 8 TRADE SECRET Yes No 11
* If EPCRA see instructions

COMMON NAME 1,2 Ethylene Glycol / Propylene Glycol 9 An EHS Chemical Yes No 12
* If EHS is "Yes", all amounts must be LBS

CAS # 10 FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

TYPE CHEMICAL a. PURE b. MIXTURE c. WASTE 14 RADIOACTIVE Yes No 15 CURIES 16

PHYSICAL STATE a. SOLID b. LIQUID c. GAS 17 HAZARD CATEGORIES a. FIRE b. REACTIVE c. PRESSURE RELEASE 18
 d. ACUTE HEALTH e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT 19 MAXIMUM DAILY AMOUNT 55 20 ANNUAL WASTE AMOUNT 100 21 STATE WASTE CODE 22

UNITS a. GALLONS b. CUBIC FEET 23 DAYS ON SITE 24 LARGEST CONTAINER 55 gallons 25
 c. POUNDS d. TONS
* If EHS, amount must be in pounds.

STORAGE CONTAINER (Check all that apply) a. ABOVEGROUND TANK a. PLASTIC DRUM i. VAT m. CYLINDER g. TANK WAGON 26
 b. UNDERGROUND TANK f. NONMETALLIC DRUM l. FIBER DRUM n. GLASS CONTAINER r. RAIL CAR
 c. TANK INSIDE BLDG g. METAL CONTAINER i. BAG(S) o. PLASTIC CONTAINER s. TOTE BIN
 d. STEEL DRUM h. CARBOY j. BOX(S) p. IN MACH OR EQUIP t. OTHER

STORAGE PRESSURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT 27

STORAGE TEMPERATURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC 28

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1 <u>50%</u> 29	<u>Ethylene glycol</u>	30 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 31	<u>107-21-1</u> 32
2 <u>50%</u> 29	<u>Propylene glycol</u>	30 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 31	<u>57-55-6</u> 32
3 <u>50%</u> 29	<u>water</u>	30 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 31	<u></u> 32
4 29		30 <input type="checkbox"/> Yes <input type="checkbox"/> No 31	<u></u> 32
5 29		30 <input type="checkbox"/> Yes <input type="checkbox"/> No 31	<u></u> 32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

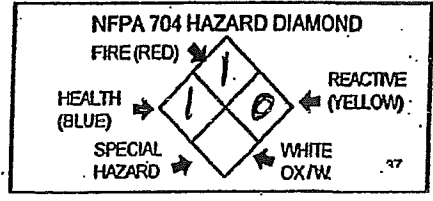
PLACARDING INFORMATION

UNDOT # Not Req 33
Refer to shipping papers or MSDS

DOT HAZARD CLASS Not Req. 34
Refer to shipping papers or MSDS

EPCRA YES NO 35

X 36
If EPCRA, Please Sign Here



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HAZARDOUS MATERIALS INVENTORY FORM

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FACILITY ID	30035	BUSINESS NAME	ISUZU manufacturing Services of America
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I. FACILITY INFORMATION

CHEMICAL LOCATION [REDACTED]

CONFIDENTIAL LOCATION EPCRA Yes No 5 MAP# #6 6 GRID# 3-J 7

II. CHEMICAL INFORMATION

CHEMICAL NAME: Rotella + 10W-40 Engine oil WASTE Yes No 8 TRADE SECRET Yes No 11

COMMON NAME: Engine oil An EHS Chemical Yes No 12

CAS # 10 FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

PURE MIXTURE WASTE 14 RADIOACTIVE Yes No 15 CURIES 16

PHYSICAL STATE SOLID LIQUID GAS 17 HAZARD CATEGORIES FIRE REACTIVE PRESSURE RELEASE 18 ACUTE HEALTH CHRONIC HEALTH

AVERAGE DAILY AMOUNT 55 19 MAXIMUM DAILY AMOUNT 55 20 ANNUAL WASTE AMOUNT 21 STATE WASTE CODE 22

UNITS GALLONS CUBIC FEET POUNDS TONS 23 DAYS ON SITE 365 24 LARGEST CONTAINER 55 gallon 25

STORAGE CONTAINER ABOVEGROUND TANK UNDERGROUND TANK TANK INSIDE BLDG STEEL DRUM PLASTIC DRUM NONMETALLIC DRUM METAL CONTAINER CARBOY I. VAT FIBER DRUM I. BAG(S) I. BOX(S) m. CYLINDER n. GLASS CONTAINER o. PLASTIC CONTAINER p. IN MACH OR EQUIP q. TANK WAGON r. RAIL CAR s. TOTE BIN t. OTHER 26

STORAGE PRESSURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT 27

STORAGE TEMPERATURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC 28

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
5.00%	Zinc Alkyl Dithiophosphate	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	68649-42-3
1.00%	Distillates (petroleum)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	64742-55-8
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

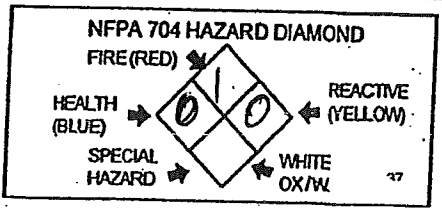
PLACARDING INFORMATION

UNDOT # Not Req Refer to shipping papers or MSDS 33

DOT HAZARD CLASS Not Req Refer to shipping papers or MSDS 34

EPCRA YES NO 35

X If EPCRA, Please Sign Here 36



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HAZARDOUS MATERIALS INVENTORY FORM

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FACILITY ID# 3 0 0 3 5					BUSINESS NAME <u>15020 Manufacturing Services of America</u>				
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I. FACILITY INFORMATION

CHEMICAL LOCATION [Redacted] 4

CONFIDENTIAL LOCATION EPCRA Yes No 5 MAP # #7 6 GRID # 2-J 7

II. CHEMICAL INFORMATION

CHEMICAL NAME USED OIL WASTE Yes No 8 TRADE SECRET Yes No 11

COMMON NAME Wast Oil 9 An EHS Chemical Yes No 12

CAS # 70514-12-4 10 FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

TYPE (Check one only): a. PURE b. MIXTURE c. WASTE 14 RADIOACTIVE Yes No 15 CURIES 16

PHYSICAL STATE: a. SOLID b. LIQUID c. GAS 17 FEDERAL HAZARD CATEGORIES: a. FIRE b. REACTIVE c. PRESSURE RELEASE d. ACUTE HEALTH e. CHRONIC HEALTH 18

AVERAGE DAILY AMOUNT 1 19 MAXIMUM DAILY AMOUNT 3 20 ANNUAL WASTE AMOUNT 700 21 STATE WASTE CODE 22

UNITS: a. GALLONS b. CUBIC FEET c. POUNDS d. TONS 23 DAYS ON SITE 365 24 LARGEST CONTAINER 400 25

STORAGE CONTAINER (Check all that apply): a. ABOVEGROUND TANK b. UNDERGROUND TANK c. TANK INSIDE BLDG d. STEEL DRUM e. PLASTIC DRUM f. NONMETALLIC DRUM g. METAL CONTAINER h. CARBOY i. VAT j. FIBER DRUM k. BAG(S) l. BOX(S) m. CYLINDER n. GLASS CONTAINER o. PLASTIC CONTAINER p. IN MACH OR EQUIP q. TANK WAGON r. RAIL CAR s. TOTE BIN t. OTHER 26

STORAGE PRESSURE: a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT 27

STORAGE TEMPERATURE: a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC 28

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
100%	lubricating oil	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	70514-12-4
20%	water / solids	<input type="checkbox"/> Yes <input type="checkbox"/> No	N. A.
10%	Hydrocarbon solvents	<input type="checkbox"/> Yes <input type="checkbox"/> No	N. A.
1.5%	metals	<input type="checkbox"/> Yes <input type="checkbox"/> No	N. A.
1.0%	Aromatics	<input type="checkbox"/> Yes <input type="checkbox"/> No	N. A.

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

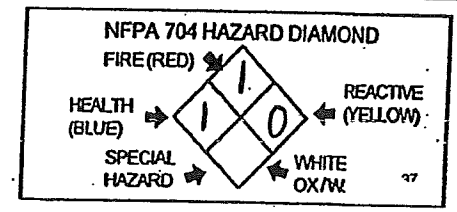
PLACARDING INFORMATION

UNDOT # Not Rec. 33 Refer to shipping papers or MSDS

DOT HAZARD CLASS Not Rec. 34 Refer to shipping papers or MSDS

EPCRA YES NO 35

X _____ 36 If EPCRA, Please Sign Here



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HAZARDOUS MATERIALS INVENTORY FORM

FORM 3

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FACILITY ID# **30035** BUSINESS NAME **ISUZU Manufacturing Services of America**

I. FACILITY INFORMATION

CHEMICAL LOCATION [redacted] 4

CONFIDENTIAL LOCATION EPCRA Yes No 5 MAP# **# 8** 6 GRID# **3-J** 7

II. CHEMICAL INFORMATION

CHEMICAL NAME **QUAKER State 20W-50 motor oil** WASTE Yes 8 TRADE SECRET Yes No 11

COMMON NAME **Engine oil** 9 An EHS Chemical Yes No 12

CAS # 10 FIRE CODE HAZARD CLASSES (supplied by GGFD) 13

* If EPCRA see Instructions
* If EHS is "Yes", all amounts must be LBS

TYPE (check one) a. PURE b. MIXTURE c. WASTE 14 RADIOACTIVE Yes No 15 CURIES 16

PHYSICAL STATE a. SOLID b. LIQUID c. GAS 17 FEDERAL HAZARD CATEGORIES a. FIRE b. REACTIVE c. PRESSURE RELEASE 18
 d. ACUTE HEALTH e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT **100** 19 MAXIMUM DAILY AMOUNT **200** 20 ANNUAL WASTE AMOUNT **0** 21 STATE WASTE CODE 22

UNITS a. GALLONS b. CUBIC FEET 23 DAYS ON SITE **365** 24 LARGEST CONTAINER **200** 25
 c. POUNDS d. TONS
* If EHS, amount must be in pounds.

STORAGE CONTAINER (check all that apply) a. ABOVEGROUND TANK e. PLASTIC DRUM i. VAT m. CYLINDER q. TANK WAGON 26
 b. UNDERGROUND TANK f. NONMETALLIC DRUM l. FIBER DRUM n. GLASS CONTAINER r. RAIL CAR
 c. TANK INSIDE BLDG g. METAL CONTAINER o. PLASTIC CONTAINER s. TOTE BIN
 d. STEEL DRUM h. CARBOY j. BOX(S) p. IN MACH OR EQUIP t. OTHER _____

STORAGE PRESSURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT 27

STORAGE TEMPERATURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC 28

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1 14%	Lube oil w/Ethylene	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Not Av.
2 10%	Lube oil w/Zinc	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Not Av.
3 3%	Lube oil w/DIALKYL FUMARATE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Not Av.
4 Blend	Petroleum Distillates	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	64742-65-0
5 Blend	Petroleum Distillates Heavy Paraffinic	<input type="checkbox"/> Yes <input type="checkbox"/> No	64742-54-7

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

PLACARDING INFORMATION

UNDOT # Not Reg 33

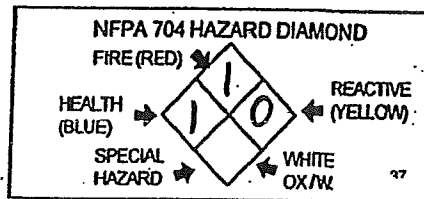
Refer to shipping papers or MSDS

DOT HAZARD CLASS Not Reg. 34

Refer to shipping papers or MSDS

EPCRA YES NO 35

X _____ 36
If EPCRA, Please Sign Here



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HAZARDOUS MATERIALS INVENTORY FORM

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FACILITY ID# 30035 BUSINESS NAME ISUZU Manufacturing Services of America

I. FACILITY INFORMATION

CHEMICAL LOCATION

CONFIDENTIAL LOCATION EPCRA Yes No

MAP # #9

GRID # 4-K

II. CHEMICAL INFORMATION

CHEMICAL NAME

#2 Bio Diesel Blend

WASTE Yes

TRADE SECRET Yes No

COMMON NAME

B20

An EHS Chemical Yes No

CAS #

68476-34-6

FIRE CODE HAZARD CLASSES (supplied by GGFD)

TYPE (Check one (or more))

a. PURE

b. MIXTURE

c. WASTE

RADIOACTIVE Yes No

CURIES

PHYSICAL STATE (Check one (or more))

a. SOLID

b. LIQUID

c. GAS

FED. HAZARD CATEGORIES

a. FIRE

b. REACTIVE

c. PRESSURE RELEASE

d. ACUTE HEALTH

e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT

55 gallon

MAXIMUM DAILY AMOUNT

55 gallons

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS

a. GALLONS

b. CUBIC FEET

c. POUNDS

d. TONS

DAYS ON SITE

365

LARGEST CONTAINER

55

STORAGE CONTAINER (Check all that apply)

a. ABOVEGROUND TANK

e. PLASTIC DRUM

i. VAT

m. CYLINDER

q. TANK WAGON

b. UNDERGROUND TANK

f. NONMETALLIC DRUM

j. FIBER DRUM

n. GLASS CONTAINER

r. RAIL CAR

c. TANK INSIDE BLDG

g. METAL CONTAINER

k. BAG(S)

o. PLASTIC CONTAINER

s. TOTE BIN

d. STEEL DRUM

h. CARBOY

l. BOX(S)

p. IN MACH OR EQUIP

t. OTHER

STORAGE PRESSURE

a. AMBIENT

b. ABOVE AMBIENT

c. BELOW AMBIENT

STORAGE TEMPERATURE

a. AMBIENT

b. ABOVE AMBIENT

c. BELOW AMBIENT

d. CRYOGENIC

%WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS #

1	29		30	<input type="checkbox"/> Yes <input type="checkbox"/> No	31	32
2	29		30	<input type="checkbox"/> Yes <input type="checkbox"/> No	31	32
3	29		30	<input type="checkbox"/> Yes <input type="checkbox"/> No	31	32
4	29		30	<input type="checkbox"/> Yes <input type="checkbox"/> No	31	32
5	29		30	<input type="checkbox"/> Yes <input type="checkbox"/> No	31	32

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

PLACARDING INFORMATION

UNDOT # UN1202

Refer to shipping papers or MSDS

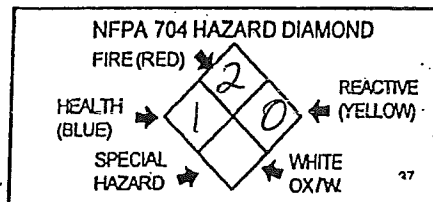
DOT HAZARD CLASS Not Reg.

Refer to shipping papers or MSDS

EPCRA YES NO

X

If EPCRA, Please Sign Here



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Terra Industries Inc.
Terra Centre – 600 Fourth Street
Sioux City, Iowa 51101

Urea Liquor

MSDS Number 2046 (Revised October 1, 2008)

6 Pages

1. CHEMICAL PRODUCT and EMERGENCY TELEPHONE CONTACT

Product Name:..... Urea Liquor
 Chemical Family:..... Amide
 Synonyms:..... Urea Solution; Urea Cattle Feed; Nitrogen Solution for SCR NO_x Control Systems
 Formula:..... CH₄N₂O + H₂O
 Product Use:..... Fertilizer; Animal Feed; SCR NO_x Control

EMERGENCY TELEPHONE NUMBER

CHEMTREC (U.S.):..... 800-424-9300
 CANUTEC (Canada):..... 613-996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	Percentage by Weight	CAS Number
Urea	30 - 85%	57-13-6
Free Ammonia	0.1 - 1.0%	7664-41-7
Biuret	0.1 - 0.5%	108-19-0
Ammonium Carbamate	0.1 - 0.5%	1111-78-0
Water	13 - 69.7%	7732-18-5

Exposure Limits				
Component	TWA	STEL	PEL	IDLH
Ammonia	25 ppm	35 ppm	50 ppm	300 ppm
No limits established for urea liquor, biuret, or ammonium carbamate				

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Colorless liquid. With slight ammonia (pungent) odor. When heated, urea releases ammonia and when heated to decomposition it emits toxic fumes of nitrogen oxides (NO_x), ammonia, and cyanuric acid. Use water to control fires involving urea liquor if water is compatible with burning material. Urea liquor itself is non-flammable.

POTENTIAL HEALTH EFFECTS

Primary Routes of Entry: Skin contact/absorption, eye contact, and vapor inhalation.

General Acute Exposure: May cause irritation to eyes and skin. Ammonia and carbon dioxide vapors may accumulate in a confined space.

General Chronic Exposure: No test data available.

Carcinogenicity:

NTP: Not Listed

IARC: Not Listed

OSHA: Not Regulated

Medical Conditions Aggravated by Exposure: No test data available.

4. FIRST AID MEASURES

First Aid for Eyes: Flush eyes with copious amounts of tepid water for at least 15 minutes. If irritation, pain, swelling, excessive tearing, or light sensitivity persists, the patient should be seen in a health care facility.

First Aid for Skin: If irritation occurs, flush exposed area with copious amounts of tepid water for at least 15 minutes followed by washing area thoroughly with soap and water. The patient should be seen in a health care facility if irritation or pain persists.

First Aid for Inhalation: If irritation develops move patient to fresh air and monitor. If cough or difficulty in breathing develops, evaluate for respiratory tract irritation. If trained to do so, administer supplemental oxygen if needed. If irritation, coughing, or difficulty in breathing persists the patient should be seen in a health care facility.

First Aid for Ingestion: If conscious, give the patient large quantities of water to drink and induce vomiting. Seek medical attention.

5. FIRE FIGHTING MEASURES

Urea liquor is not flammable.

Extinguishing Media: Use water to extinguish a fire involving urea liquor if water is compatible with the burning material.

Special Fire Fighting Procedures:

- a. Positive pressure self-contained breathing apparatus (SCBA) should be used when there is a potential for inhalation of vapors and/or fumes.
- b. Wear full fire fighting protective equipment that is appropriate for conditions.

Caution:

- a. Runoff from fire control or dilution water may cause pollution.
- b. At elevated temperature, urea liquor may decompose to form cyanuric acid, ammonia, biuret, and/or nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Measures: Keep unnecessary people away and isolate hazard area. Urea liquor may be toxic to cattle (ruminants) when ingested if amount ingested is not controlled properly.

Determining Spill Size: Generally, a small spill is one that involves a single, small package (i.e. up to a 55 gallon drum), small cylinder, or a small (non-continuing) leak from a large container.

Small or Large Spill:

- a. Spilled urea liquor may cause slippery conditions.
- b. Recover and use as fertilizer.
- c. If disposal of product or contaminated by-products is necessary, follow guidelines set forth by local, state, and federal environmental agencies.
- d. Runoff may cause pollution.

7. HANDLING AND STORAGE

No unusual storage precautions are necessary.

Handling Precautions: Use proper personal protective equipment when working with or around urea liquor. (See section 8).

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Respiratory Protection Requirements: Urea liquor may pose an inhalation hazard in confined areas due to its ability to produce ammonia and carbon dioxide vapors. If necessary to enter an area that contains urea liquor, monitor for ammonia and oxygen content. Oxygen levels should be maintained between 19.5% and 23.5%, if outside of this range use appropriate precautions. If ammonia vapors are present, protect as follows:

<25 ppm:	No protection required.
25 to 35 ppm:	Protection required if the daily TWA is exceeded.
35 to 50 ppm:	Protection required if exposed for more than 15 minutes
50 to 250 ppm:	Minimum of an air-purifying respirator equipped with ammonia canister(s) or cartridge(s).
250 to 300 ppm:	Minimum of a full-face air-purifying respirator equipped with ammonia canister(s) or cartridge(s).
>300 ppm:	A fresh air supply system must be used (i.e. positive pressure self contained breathing apparatus)

Engineering Controls: Adequate ventilation should be supplied.

Skin Protection Requirements: Impervious gloves should be worn. Urea liquor may be shipped at elevated temperatures (depending upon concentration). Additional protection for hands and skin should be used to prevent contact of hot liquid.

Eye Protection Requirements: It is recommended that safety glasses or goggles be used and if there is a potential for splashing liquid, a face shield should be used in conjunction with the safety glasses or goggles.

Other Protective Equipment: Safety shower and eyewash fountain or at least 5 gallons of accessible clean water should be provided in a urea liquid handling area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Liquid
Color: Colorless
Odor: Slight ammonia odor (pungent)
Boiling Point: 50% urea solution boils at 223° F (106° C)
Melting point: 50% urea solution salts out at 64° F (18° C)
..... 70% urea solution salts out at 135° F (57° C)
PH range: 7.0 to 10.0 (depending upon free ammonia)
Solubility: 100%
Specific Gravity: 1.14 for 50% urea solution
..... 1.175 for 70% urea solution
Vapor Density: No test results
Vapor Pressure: No test results
% Volatile by Volume: No test results
Molecular Weight: Not applicable
Density: 9.51 lb. per gallon for 50 % solution
..... 9.80 lb. per gallon for 70 % solution
Critical Temperature: No test results
Critical Pressure: No test results

10. REACTIVITY

Stability: This is a stable material.

Hazardous Polymerization: Will not occur.

Decomposition: Urea liquor forms ammonia, cyanuric acid, biuret, and/or nitrogen oxides (NO_x) upon decomposition.

Incompatibilities: Incompatible with sodium nitrite, phosphorus pentachloride, and nitrosyl or gallium perchlorate. Urea will form urea nitrate when mixed with nitric acid at low pH. Urea nitrate may become unstable and/or explosive under certain conditions.

11. TOXICOLOGICAL INFORMATION

Toxicity

Acute Oral Toxicity

LD₅₀, Rat:..... 14,300 – 15,000 mg/kg

LD₅₀, Mouse:..... 11,500 – 13,000 mg/kg

LD₅₀, Cattle:..... 510 mg/kg

Repeated Dose Toxicity

Rat: NOAEL = 40% in ointment (24 wks; dermal)

Ecotoxicity

Acute Toxicity to Fish

LC₅₀ *Barillius barna* 9,100 mg/L (96 hr)

Acute Toxicity to Aquatic Invertebrates

EC₅₀ *Daphnia magna* >10,000 mg/L (DIN 38412 Part II; 24 hr)

Toxicity to Aquatic Plants

TT *Scenedesmus quadracauda* >10,000 mg/L (192 hr cell multiplication inhibition test)

Note: Data is for Urea

Source: TFI Product Testing Program April 2003

12. ECOLOGICAL INFORMATION

Notify local health and wildlife officials and operators of any nearby water intakes of contamination or discharge into or leading to waterways.

Note: See Ecotoxicity information in section 11.

13. DISPOSAL CONSIDERATIONS

Urea liquor is not listed by the Federal EPA as a hazardous waste. Consult state/provincial and local environmental agencies for acceptable disposal methods. Recover product for use as a fertilizer if possible.

14. TRANSPORTATION INFORMATION

Urea liquor is not listed by any U.S. or Canadian transportation authority as a hazardous material and as such, no specific information is available.

15. REGULATORY INFORMATION

SARA TITLE III: Not Listed

CERCLA Hazardous Substances List: Not Listed

TSCA Inventory: Listed

16. OTHER INFORMATION

Nov. 5, 1996: The MSDS was rewritten to comply with ANSI Standard Z400.1-1993.

July 1, 2003: Added toxicity information from the TFI Product Testing Program 2003.

August 4, 2006: Reviewed and reissued without revisions.

October 4, 2006: Revised Reactivity section to add information concerning the hazards of urea nitrate formation when urea is mixed with nitric acid.

August 24, 2007: Added pH range.

October 1, 2008: Minor language change to skin protection requirements, removed reactivity references to chlorinated compounds.

The information and recommendations herein are taken from data contained in independent, industry-recognized references including but not limited to NIOSH, OSHA, CHRIS, the TFI Product Testing Program, and SAX's Dangerous Properties of Industrial Materials - ninth edition. Terra Industries Inc. makes no guarantee, warranty or other representation concerning this substance, since conditions of its use are beyond the control of the company. Terra Industries Inc. disclaims any liability for loss or damage incurred in connection with the use of this substance.

Praxair Material Safety Data Sheet

1. Chemical Product and Company Identification

Product Name: Acetylene, dissolved (MSDS No. P-4559-K)	Trade Names: Acetylene
Chemical Name: Acetylene	Synonyms: Acetylen, ethine, ethyne, narcylene
Chemical Family: Alkyne	Product Grades: Industrial, 2.6 atomic absorption
Telephone: Emergencies: 1-800-645-4633* CHEMTREC: 1-800-424-9300* Routine: 1-800-PRAXAIR	Company Name: Praxair, Inc. 39 Old Ridgebury Road Danbury, CT 06810-5113

*Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier, Praxair sales representative, or call 1-800-PRAXAIR (1-800-772-9247).

2. Hazards Identification

EMERGENCY OVERVIEW

DANGER! Flammable gas under pressure.

Can form explosive mixtures with air.

Fusible plugs in top, bottom, or valve melt at 208-224°F (98-107°C).

Do not discharge at pressures above 15 psig (103 kPa).

May cause dizziness and drowsiness.

Self-contained breathing apparatus may be required by rescue workers.

At normal temperature and pressure, commercial acetylene is a colorless gas with a distinctive garlic-like odor.

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

POTENTIAL HEALTH EFFECTS:

Effects of a Single (Acute) Overexposure

Inhalation. Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, nausea, vomiting, and unconsciousness. The vapor from a liquid release may also cause incoordination, abdominal pain. Effects may be delayed. Lack of oxygen can kill.

Skin Contact. No harm expected from vapor. Liquid may cause frostbite.

Swallowing. An unlikely route of exposure, but frostbite of the lips and mouth may result from contact with the liquid. If swallowed, the liquid may cause nausea.

Eye Contact. Vapors containing acetone may irritate the eyes. Liquid may irritate and cause frostbite.

Effects of Repeated (Chronic) Overexposure. No harm expected.

Other Effects of Overexposure. Asphyxiant. Lack of oxygen can kill.

Medical Conditions Aggravated by Overexposure. The toxicology and the physical and chemical properties of this product suggest that overexposure is unlikely to aggravate existing medical conditions.

CARCINOGENICITY: This product is not listed by NTP, OSHA, or IARC.

POTENTIAL ENVIRONMENTAL EFFECTS: None expected. For further information, see section 12, Ecological Information.

3. Composition/Information on Ingredients

This section covers materials of manufacture only. See sections 8, 10, 11, 15, and 16 for information on by-products generated during use, especially use in welding and cutting. See section 16 for important information about mixtures.

COMPONENT	CAS NUMBER	CONCENTRATION
Acetylene	74-86-2	>99%*

*The symbol > means "greater than."

NOTE: Acetylene cylinders are filled with a porous material containing acetone (CAS 67-64-1) into which the acetylene is dissolved.

4. First Aid Measures

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.

SKIN CONTACT: For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). In case of massive exposure, remove contaminated clothing while showering with warm water. Call a physician.

SWALLOWING: If liquid is swallowed, immediately give two glasses of water and induce vomiting if victim is conscious. Call a physician.

EYE CONTACT: In case of splash contamination, immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are thoroughly flushed. See a physician, preferably an ophthalmologist, immediately.

NOTES TO PHYSICIAN: Aspirated acetone may cause severe lung damage. If a large quantity of material has been swallowed, stomach contents should be evacuated quickly in a manner that avoids aspiration. Otherwise, there is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire Fighting Measures

FLAMMABLE PROPERTIES: Extremely flammable gas. Forms explosive mixtures with air and oxidizing agents.

SUITABLE EXTINGUISHING MEDIA: See the following paragraphs. See CGA Pamphlet SB-4, *Handling Acetylene Cylinders in Fire Situations*, listed in section 16, for further information.

PRODUCTS OF COMBUSTION: Carbon monoxide, carbon dioxide

PROTECTION OF FIREFIGHTERS: DANGER! Flammable gas under pressure. Evacuate all personnel from danger area. Immediately cool cylinders with water spray from maximum distance, taking care not to extinguish flames. If flames are accidentally extinguished, explosive re-ignition may occur. Use self-contained breathing apparatus. Remove ignition sources if without risk. Stop flow of gas if without risk while continuing cooling water spray. Remove all cylinders from area of fire if without risk. Allow fire to burn out. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

Specific Physical and Chemical Hazards. Heat of fire can build pressure in cylinder and cause it to rupture. Acetylene cylinders are provided with pressure relief devices designed to vent contents when exposed to elevated temperature. No part of a cylinder should be subjected to a temperature higher than 125°F (52°C). If venting or leaking acetylene catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering area, especially confined areas, check atmosphere with an approved explosion meter.

Protective Equipment and Precautions for Firefighters. Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

DANGER! Flammable gas under pressure.

Personal Precautions. Forms explosive mixtures with air. Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Remove all sources of ignition if without risk. Reduce vapors with fog or fine water spray. Shut off flow if without risk. Ventilate area or move leaking cylinder to well-ventilated area. Flammable gas may spread from leak. Before entering area, especially confined areas, check atmosphere with an appropriate device.

Environmental Precautions. Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations. If necessary, call your local supplier for assistance.

7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING: Keep away from heat, sparks, and open flame. Use only spark-proof tools and explosion-proof equipment. Never use acetylene at pressures exceeding 15 psig (103.5 kPa). Can cause rapid suffocation due to oxygen deficiency. Close valve after each use; keep closed even when empty. Arcs and sparks can ignite combustible materials. Prevent fires. For more information on fire prevention in welding and cutting, see NFPA 51B, *Standard for Fire Prevention During Welding, Cutting, and Other Hotwork*, published by the National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, MA

02269-9101; 1-800-344-3555; www.nfpa.org. Do not strike an arc on a compressed gas cylinder. The defect produced by an arc burn could lead to cylinder rupture.

PRECAUTIONS TO BE TAKEN IN STORAGE: Acetylene storage in excess of 2,500 cu ft (70.79 m³) is prohibited in buildings with other occupancies. Store and use with adequate ventilation. Separate acetylene cylinders from oxygen and other oxidizers by at least 20 ft (6.1 m), or use a barricade of noncombustible material. This barricade should be at least 5 ft (1.53 m) high and have a fire resistance rating of at least ½ hour. Post "No Smoking or Open Flames" signs in storage and use areas. There must be no sources of ignition. All electrical equipment in storage areas must be explosion-proof. Storage areas must meet national electric codes for Class 1 hazardous areas. Store only where temperature will not exceed 125°F (52°C). For other precautions in using acetylene, see section 16.

RECOMMENDED PUBLICATIONS: For further information on storage, handling, and use, see Praxair publication P-14-153, *Guidelines for Handling Gas Cylinders and Containers*. Obtain from your local supplier.

8. Exposure Controls/Personal Protection

See section 16 for important information on by-products generated during use in welding and cutting.

COMPONENT	OSHA PEL	ACGIH TLV-TWA (2009)
Acetylene	N.E.*	Simple asphyxiant

*N.E.—Not Established.

NOTE: Acetone, used as a solvent, has a TLV-TWA of 500 ppm for acetone and a TLV-STEL of 750 ppm (ACGIH, 2009). OSHA PEL, 1000 ppm (2400 mg/m³).

TLV-TWAs should be used as a guide in the control of health hazards and not as fine lines between safe and dangerous concentrations.

IDLH = Not available.

ENGINEERING CONTROLS:

Local Exhaust. Use a local exhaust system, if necessary, to prevent oxygen deficiency and to keep hazardous fumes and gases in the worker's breathing zone below all applicable exposure limits.

Mechanical (General). General exhaust ventilation may be acceptable if it can maintain an adequate supply of air and keep hazardous fumes and gases in the worker's breathing zone below all applicable exposure limits.

Special. None

Other. None

PERSONAL PROTECTIVE EQUIPMENT:

Skin Protection. Wear work gloves when handling cylinders; welding gloves for welding and cutting.

Eye/Face Protection. Wear goggles with filter lenses selected as per ANSI Z49.1. Provide protective screens and goggles, if necessary, to protect others. Select as per OSHA 29 CFR 1910.33. For welding, see section 16.

Respiratory Protection. A respiratory protection program that meet OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable) requirements must be followed

whenever workplace conditions warrant respirator use. Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure (e.g., an organic vapor cartridge). For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus. Adequate ventilation must keep worker exposure below applicable exposure limits for fumes, gases, and other by products of welding.

Other Protective Equipment. As needed, wear hand, head, and body protection, which help to prevent injury from radiation and sparks. See ANSI Z49.1. At a minimum, this includes welder's gloves and protective goggles, and may include arm protectors, aprons, hats, and shoulder protection, as well as substantial clothing. Regardless of protective equipment, never touch live electrical parts.

9. Physical and Chemical Properties

APPEARANCE:	Colorless gas
ODOR:	Acetylene of 100% purity is odorless, but commercial acetylene has a distinctive, garlic-like odor.
ODOR THRESHOLD:	Not available.
PHYSICAL STATE:	Gas at normal temperature and pressure
pH:	Not applicable.
SUBLIMATION POINT at 1 atm:	-118°F (-83.3°C)
MELTING POINT at 10 psig (170 kPa abs):	-116°F (-82.2°C)
BOILING POINT at 10 psig (170 kPa abs):	-103.4°F (-75.2°C)
FLASH POINT:	-0°F (-17.8°C)
EVAPORATION RATE (Butyl Acetate = 1):	Not applicable.
FLAMMABILITY:	Flammable
FLAMMABLE LIMITS IN AIR, % by volume:	LOWER: 2.5% UPPER: 100%
VAPOR PRESSURE at 70°F (21.1°C):	649.6 psia (4479 kPa abs)*
VAPOR DENSITY at 32°F (0°C) and 1 atm:	0.07314 lb/ft ³ (1.1716 kg/m ³)
SPECIFIC GRAVITY (H₂O = 1):	Not applicable.
SPECIFIC GRAVITY (Air = 1) at 32°F (0°C) and 1 atm:	0.906
SOLUBILITY IN WATER vol/vol at 32°F (0°C):	1.7
PARTITION COEFFICIENT: n-octanol/water:	Not available.
AUTOIGNITION TEMPERATURE:	581°F (305°C) at 1 atm
DECOMPOSITION TEMPERATURE:	Not available.
PERCENT VOLATILES BY VOLUME:	100
MOLECULAR WEIGHT:	26.04
MOLECULAR FORMULA:	C ₂ H ₂

*Maximum cylinder pressure: 250 psig (kPa) at 70°F (21.1°C)

10. Stability and Reactivity

CHEMICAL STABILITY: Unstable Stable

Acetylene is stable as shipped. Avoid use at pressures above 15 psig (103 kPa).

CONDITIONS TO AVOID: Elevated temperature and pressure and/or the presence of a catalyst.

INCOMPATIBLE MATERIALS: Copper, silver, mercury, or their alloys; oxidizing agents; acids; halogens; moisture.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition or burning may produce CO/CO₂H₂. The welding and cutting process may form reaction products such as CO and CO₂. Other decomposition products of normal operation originate from the volatilization, reaction, or oxidation of the material being worked.

POSSIBILITY OF HAZARDOUS REACTIONS: May Occur Will Not Occur

Fire or explosion may result from use at elevated temperatures and pressures or from use with incompatible materials.

11. Toxicological Information

ACUTE DOSE EFFECTS: No known effects from acetylene gas. The welding process may generate hazardous fumes and gases. (See sections 8, 10, 15, and 16.)

12. Ecological Information

ECOTOXICITY: No adverse ecological effects expected.

OTHER ADVERSE EFFECTS: None known. Acetylene does not contain any Class I or Class II ozone-depleting chemicals.

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

14. Transport Information

DOT/IMO SHIPPING NAME: Acetylene, dissolved.

HAZARD CLASS:	PACKING GROUP/Zone:	IDENTIFICATION NUMBER:	PRODUCT RQ:
2.1	None	UN1001	None

SHIPPING LABEL(s): FLAMMABLE GAS

PLACARD (when required): FLAMMABLE GAS

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, nonventilated compartment of a vehicle can present serious safety hazards.

Shipment of compressed gas cylinders that have been filled without the owner's consent is a violation of federal law [49 CFR 173.301(b)].

MARINE POLLUTANTS: Acetylene is not listed as a marine pollutant by DOT.

15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, state, and local regulations.

U.S. FEDERAL REGULATIONS:

EPA (ENVIRONMENTAL PROTECTION AGENCY)

CERCLA: COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (40 CFR Parts 117 and 302):

Reportable Quantity (RQ): None

SARA: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:

SECTIONS 302/304: Require emergency planning based on Threshold Planning Quantity (TPQ) and release reporting based on Reportable Quantities (RQ) of Extremely Hazardous Substances (EHS) (40 CFR Part 355):

TPQ: None

EHS RQ (40 CFR 355): None

SECTIONS 311/312: Require submission of MSDSs and reporting of chemical inventories with identification of EPA hazard categories. The hazard categories for this product are as follows:

IMMEDIATE: No

PRESSURE: Yes

DELAYED: No

REACTIVITY: Yes

FIRE: Yes

SECTION 313: Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

Acetylene is not subject to reporting under Section 313.

40 CFR 68: RISK MANAGEMENT PROGRAM FOR CHEMICAL ACCIDENTAL RELEASE PREVENTION: Requires development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

Acetylene is listed as a regulated substance in quantities of 10,000 lb (4536 kg) or greater.

TSCA: TOXIC SUBSTANCES CONTROL ACT: Acetylene is listed on the TSCA inventory.

OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

29 CFR 1910.119: PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS: Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

Acetylene is not listed in Appendix A as a highly hazardous chemical. However, any process that involves a flammable gas on site in one location in quantities of 10,000 lb (4536 kg) or greater is covered under this regulation unless the gas is used as a fuel.

STATE REGULATIONS:

CALIFORNIA: Acetylene is not listed by California under the SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (Proposition 65).

PENNSYLVANIA: Acetylene is subject to the PENNSYLVANIA WORKER AND COMMUNITY RIGHT-TO-KNOW ACT (35 P.S. Sections 7301-7320).

16. Other Information

Read and understand all labels and instructions supplied with all containers of this product.

ADDITIONAL SAFETY AND HEALTH HAZARDS: Using this product in welding and cutting may create additional hazards.

Read and understand the manufacturer's instructions and the precautionary labels on the products used in welding and cutting. For other safe practices information and a more-detailed description of the health hazards of welding and their consequences, ask your welding products supplier for a copy of Praxair's free safety booklet, P-52-529, *Precautions and Safe Practices for Electric Welding and Cutting*, and for other manufacturers' safety publications. For a detailed treatment, get ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, published by the American Welding Society (AWS), 550 N.W. Le Jeune Rd., Miami, FL 33126, <http://www.aws.org/>, or see OSHA's Web site at <http://www.osha-slc.gov/SLTC/weldingcuttingbrazing/>. Order AWS documents from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112-5710, <http://global.ihs.com/>.

FUMES AND GASES can be dangerous to your health and may cause serious lung disease.

- **Keep your head out of fumes. Do not breathe fumes and gases. Use enough ventilation, local exhaust, or both to keep fumes and gases from your breathing zone and the general area. Short-term overexposure to fumes may cause dizziness, nausea, and dryness or irritation of the nose, throat, and eyes or may cause other similar discomfort.**

Fumes and gases cannot be classified simply. The amount and type depend on the metal being worked and the process, procedure, equipment, and supplies used. Possible dangerous materials may be found in fluxes, electrodes, and other materials. Get an MSDS for every material you use.

Contaminants in the air may add to the hazard of fumes and gases. One such contaminant, chlorinated hydrocarbon vapors from cleaning and degreasing activities, poses a special risk.

To find the quantity and content of fumes and gases, you can take air samples. By analyzing these samples, you can find out what respiratory protection you need. One recommended sampling method is to take air from inside the worker's helmet or from the worker's breathing zone. See AWS F1.1, *Methods for Sampling and Analyzing Gases for Welding and Allied Processes*, available from the American Welding Society, 550 N.W. Le Jeune Rd., Miami, FL 33126.

NOTES TO PHYSICIAN:

Acute: Gases, fumes, and dusts may cause irritation to the eyes, lungs, nose, and throat. Some toxic gases associated with welding and related processes may cause pulmonary edema, asphyxiation, and death. Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, difficulty breathing, frequent coughing, or chest pains.

Chronic: Protracted inhalation of air contaminants may lead to their accumulation in the lungs, a condition that may be seen as dense areas on chest x-rays. The severity of change is proportional to the length of exposure. The changes seen are not necessarily associated with symptoms or signs of reduced lung function or disease. In addition, the changes on x-rays may be caused by non-work-related factors such as smoking, etc.

PROTECTIVE CLOTHING AND EQUIPMENT FOR WELDING OPERATIONS:

PROTECTIVE GLOVES: Wear welding gloves.

EYE PROTECTION: Wear a helmet or use a face shield with a filter lens. Select lens per ANSI Z49.1. Provide protective screens and flash goggles if needed to protect others; select per OSHA 29 CFR 1910.133.

OTHER PROTECTIVE EQUIPMENT: Wear hand, head, and body protection. (See ANSI Z49.1.) Worn as needed, these help prevent injury from radiation, sparks, and electrical shock. Minimum protection includes welder's gloves and a face shield. For added protection, consider arm protectors, aprons, hats, shoulder protection, and dark, substantial clothing.

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE: *Flammable gas under pressure.* Use piping and equipment adequately designed to withstand pressures.

Acetylene systems should be installed only by persons with knowledge of the unique properties of acetylene and trained and experienced in such installation. All piped acetylene systems and associated equipment must be grounded. Electrical equipment must be non-sparking or explosion-proof. Leak check with soapy water; never use a flame. Use a backflow prevention device in any piping. In choosing tools and equipment, avoid materials incompatible with acetylene. Copper, silver, and mercury and their salts, compounds, and high-concentration alloys can form explosive compounds with acetylene. Never use copper piping for acetylene service; use only steel or wrought iron. Brass containing less than 65 percent copper and certain nickel alloys are generally acceptable for use in acetylene service but may not be adequate if high corrosion or excess moisture is present. Never work on a pressurized system. If there is a leak, close the cylinder valve. Blow down the system in an environmentally safe manner in compliance with all federal, state, and local laws; then repair the leak. Never place a compressed gas cylinder where it may become part of an electrical circuit.

Mixtures. When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Chemicals have properties that can cause serious injury or death.

HAZARD RATING SYSTEMS:

NFPA RATINGS:

— HEALTH = 0
 — FLAMMABILITY = 4
 — INSTABILITY = 2
 — SPECIAL = None

HMIS RATINGS:

HEALTH = 2
 FLAMMABILITY = 4
 PHYSICAL HAZARD = 2

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED:

The CGA-510 connection is standard for cylinders of greater than 50 cu ft (1.42 m³) capacity. See CGA Pamphlet V-1 for other, limited-standard connections.

PIN-INDEXED YOKE:

Not applicable.

ULTRA-HIGH-INTEGRITY CONNECTION:

Not applicable.

Use the proper CGA connections. **DO NOT USE ADAPTERS.** Additional limited-standard connections may apply. See CGA pamphlet V-1 listed below.

3

Praxair Material Safety Data Sheet

1. Chemical Product and Company Identification

Product Name: Compressed gases, n.o.s. (nitrogen, hydrogen) (MSDS No. P-6291-A)	Trade Names: Custom-Blended Mixtures, Hydrostar® H5N gas mixture
Chemical Name: Mixtures of hydrogen and nitrogen	Synonyms: Not applicable.
Chemical Family: Not applicable.	Product Grades: None assigned.
Telephone: Emergencies: 1-800-645-4633* CHEMTREC: 1-800-424-9300* Routine: 1-800-PRAXAIR	Company Name: Praxair, Inc. 39 Old Ridgebury Road Danbury, CT 06810-5113

*Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier, Praxair sales representative, or call 1-800-PRAXAIR (1-800-772-9247).

2. Hazards Identification

EMERGENCY OVERVIEW

CAUTION! High-pressure gas.
Can cause rapid suffocation.
May cause dizziness and drowsiness.
Self-contained breathing apparatus may be required by rescue workers.
Under ambient conditions, this is a colorless, odorless gas.

OSHA REGULATORY STATUS: The components of this mixture are considered hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

POTENTIAL HEALTH EFFECTS:

Effects of a Single (Acute) Overexposure

Inhalation. Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.

Skin Contact. No harm expected.

Swallowing. An unlikely route of exposure. This product is a gas at normal temperature and pressure.

Eye Contact. No harm expected.

Effects of Repeated (Chronic) Overexposure. No harm expected.

Other Effects of Overexposure. Asphyxiant. Lack of oxygen can kill.

Medical Conditions Aggravated by Overexposure. The toxicology and the physical and chemical properties of this product suggest that overexposure is unlikely to aggravate existing medical conditions.

Product: Compressed gases, n.o.s. P-6291-A
(Nitrogen, Hydrogen)

Date: December 2007

CARCINOGENICITY: Neither of the components of this mixture is listed by NTP, OSHA, or IARC.

POTENTIAL ENVIRONMENTAL EFFECTS: None known. For further information, see section 12, Ecological Information.

3. Composition/Information on Ingredients

See sections 8, 10, 11, and 16 for information on by-products generated during use in welding and cutting.

See section 16 for important information about mixtures.

COMPONENT	CAS NUMBER	CONCENTRATION
Hydrogen	1333-74-0	1 ppm-5.7%
Nitrogen	7727-37-9	Balance

4. First Aid Measures

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.

SKIN CONTACT: Flush with water. If discomfort persists, seek medical attention.

SWALLOWING: An unlikely route of exposure. This product is a gas at normal temperature and pressure.

EYE CONTACT: Flush eyes thoroughly with water. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. If discomfort persists, seek medical attention.

NOTES TO PHYSICIAN: *There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.*

5. Fire Fighting Measures

FLAMMABLE PROPERTIES: This mixture cannot catch fire.

SUITABLE EXTINGUISHING MEDIA: Use media appropriate for surrounding fire. Water (i.e., safety shower) is the preferred extinguishing media for clothing fires.

PRODUCTS OF COMBUSTION: See section 10.

PROTECTION OF FIREFIGHTERS: CAUTION! High-pressure gas. Asphyxiant. Lack of oxygen can kill. Evacuate all personnel from danger area. Immediately deluge cylinders with water from maximum distance until cool, then move them away from fire area if without risk. Shut off flow if you can do so without risk. Self-contained breathing apparatus may be required for rescue workers. (See section 16.) On-site fire brigades must comply with OSHA 29 CFR 1910.156.

Specific Physical and Chemical Hazards. Heat of fire can build pressure in cylinder and cause it to rupture. No part of cylinder should be subjected to a temperature higher than 125°F (52°C). Cylinders of this mixture are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.)

Protective Equipment and Precautions for Firefighters. Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

CAUTION! High-pressure gas.

Personal Precautions. Asphyxiant. Lack of oxygen can kill. Evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Shut off flow if you can do so without risk. Ventilate area or move cylinder to a well-ventilated area. Test for sufficient oxygen, especially in confined spaces, before allowing reentry.

Environmental Precautions. Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations. If necessary, call your local supplier for assistance.

7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING: Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open valve slowly. If valve is hard to open, discontinue use and contact your supplier. For other precautions in using this mixture, see section 16.

PRECAUTIONS TO BE TAKEN IN STORAGE: Store and use with adequate ventilation. *Always secure cylinders upright* to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 125°F (52°C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

RECOMMENDED PUBLICATIONS: For further information on storage, handling, and use, see Praxair publication P-14-153, *Guidelines for Handling Gas Cylinders and Containers*. Obtain from your local supplier.

8. Exposure Controls/Personal Protection

See section 16 for important information on by-products generated during use in welding and cutting.

COMPONENT	OSHA PEL	ACGIH TLV-TWA (2007)
Hydrogen	None currently established	Simple asphyxiant
Nitrogen	None currently established	Simple asphyxiant

IDLH = Not available.

ENGINEERING CONTROLS:

Local Exhaust. Use a local exhaust system, if necessary, to prevent oxygen deficiency and to keep hazardous fumes and gases below all applicable exposure limits in the worker's breathing zone.

Product: Compressed gases, n.o.s. P-6291-A
(Nitrogen, Hydrogen)

Date: December 2007

Mechanical (General). General exhaust ventilation may be acceptable if it can maintain an adequate supply of air and to keep hazardous fumes and gases below applicable exposure limits in the worker's breathing zone.

Special. None

Other. None

PERSONAL PROTECTIVE EQUIPMENT:

Skin Protection. Wear work gloves when handling cylinders, welding gloves for welding and cutting. Metatarsal shoes for cylinder handling. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133. Regardless of protective equipment, never touch live electrical parts.

Eye/Face Protection. Wear safety glasses when handling cylinders. For welding, see section 16.

Respiratory Protection. None required under normal use. Air-supplied respirators must be used in confined spaces or in an oxygen-deficient atmosphere. For welding, use air-purifying or air-supplied respirators, as appropriate, where local or general exhaust ventilation is inadequate. Adequate ventilation must keep worker exposure below applicable exposure limits for fumes, gases, and other by-products of welding. Respiratory protection must conform to OSHA rules as specified in 29 CFR 1910.134.

9. Physical and Chemical Properties

APPEARANCE:	Colorless gas
ODOR:	Odorless
ODOR THRESHOLD:	Not available.
PHYSICAL STATE:	Gas at normal temperature and pressure
pH:	Not applicable.
MELTING POINT at 1 atm:	Not applicable.
BOILING POINT at 1 atm:	Not available.
FLASH POINT (test method):	Not applicable.
EVAPORATION RATE (Butyl Acetate = 1):	Not available.
FLAMMABILITY:	Nonflammable
FLAMMABLE LIMITS IN AIR, % by volume:	LOWER: Not applicable. UPPER: Not applicable.
VAPOR PRESSURE at 68°F (20°C):	Not applicable.
VAPOR DENSITY at 70°F (21.1°C) and 1 atm:	Not available.
SPECIFIC GRAVITY (H ₂ O = 1) at 19.4°F (-7°C):	Not available.
SPECIFIC GRAVITY (Air = 1) at 70°F (21.1°C) and 1 atm:	0.917-0.967 (calculated)
SOLUBILITY IN WATER:	Slight
PARTITION COEFFICIENT: n-octanol/water:	Not available.
AUTOIGNITION TEMPERATURE:	None.
DECOMPOSITION TEMPERATURE:	Not available.
PERCENT VOLATILES BY VOLUME:	100
MOLECULAR WEIGHT:	Not available.
MOLECULAR FORMULA:	Mixtures of H ₂ & N ₂

Product: Compressed gases, n.o.s. P-6291-A
(Nitrogen, Hydrogen)

Date: December 2007

10. Stability and Reactivity

CHEMICAL STABILITY: Unstable Stable

CONDITIONS TO AVOID: Under certain conditions, nitrogen can react violently with lithium, neodymium, titanium, and magnesium to form nitrides. At high temperature it can also combine with oxygen and hydrogen.

INCOMPATIBLE MATERIALS: Oxidizing agents, lithium, halogens (hydrogen component)

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

POSSIBILITY OF HAZARDOUS REACTIONS: May Occur Will Not Occur

Under certain conditions, nitrogen can react violently with lithium, neodymium, titanium, and magnesium to form nitrides.

11. Toxicological Information

ACUTE DOSE EFFECTS: The welding process may generate hazardous fumes and gases.

STUDY RESULTS: No known effects.

12. Ecological Information

ECOTOXICITY: No adverse ecological effects expected.

OTHER ADVERSE EFFECTS: Neither component of this mixture contains any Class I or Class II ozone-depleting chemicals.

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

14. Transport Information

DOT/IMO SHIPPING NAME: Compressed gases, n.o.s. (nitrogen, hydrogen)

HAZARD CLASS:	PACKING GROUP/Zone:	IDENTIFICATION NUMBER:	PRODUCT RQ:
2.2	NA/NA*	UN1956	None

SHIPPING LABEL(s): NONFLAMMABLE GAS

PLACARD (when required): NONFLAMMABLE GAS

* NA=Not applicable.

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, nonventilated compartment of a vehicle can present serious safety hazards.

Shipment of compressed gas cylinders that have been filled without the owner's consent is a violation of federal law [49 CFR 173.301(b)].

MARINE POLLUTANTS: Neither component is listed as a marine pollutant by DOT.

15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, state, and local regulations.

U.S. FEDERAL REGULATIONS:

EPA (ENVIRONMENTAL PROTECTION AGENCY)

CERCLA: COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (40 CFR Parts 117 and 302):

Reportable Quantity (RQ): None

SARA: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:

SECTIONS 302/304: Require emergency planning based on Threshold Planning Quantity (TPQ) and release reporting based on Reportable Quantities (RQ) of Extremely Hazardous Substances (EHS) (40 CFR Part 355):

TPQ: None

EHS RQ (40 CFR 355): None

SECTIONS 311/312: Require submission of MSDSs and reporting of chemical inventories with identification of EPA hazard categories. The hazard categories for this product are as follows:

IMMEDIATE: No

PRESSURE: Yes

DELAYED: No

REACTIVITY: No

FIRE: No

SECTION 313: Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

Neither component of this mixture is subject to reporting under Section 313.

40 CFR 68: RISK MANAGEMENT PROGRAM FOR CHEMICAL ACCIDENTAL RELEASE PREVENTION: Requires development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

Neither component of this mixture is listed as a regulated substance.

TSCA: TOXIC SUBSTANCES CONTROL ACT: The components of this mixture are listed on the TSCA inventory.

OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

29 CFR 1910.119: PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS: Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

Neither component of this mixture is listed in Appendix A as a highly hazardous chemical.

STATE REGULATIONS:

CALIFORNIA: Neither component of this mixture is listed by California under the SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (Proposition 65).

PENNSYLVANIA: Neither component of this mixture is subject to the PENNSYLVANIA WORKER AND COMMUNITY RIGHT-TO-KNOW ACT (35 P.S. Sections 7301-7320).

16. Other Information

Be sure to read and understand all labels and instructions supplied with all containers of this product.

ADDITIONAL SAFETY AND HEALTH HAZARDS: Using this product in welding and cutting may create additional hazards:

FUMES AND GASES can be dangerous to your health and may cause serious lung disease.

- **Keep your head out of fumes. Do not breathe fumes and gases. Use enough ventilation, local exhaust, or both to keep fumes and gases from your breathing zone and the general area. Short-term overexposure to fumes may cause dizziness, nausea, and dryness or irritation of the nose, throat, and eyes or may cause other similar discomfort.**

Fumes and gases cannot be classified simply. The amount and type depend on the metal being worked and the process, procedure, equipment, and supplies used. Possible dangerous materials may be found in fluxes, electrodes, and other materials. Get an MSDS for every material you use.

Contaminants in the air may add to the hazard of fumes and gases. One such contaminant, chlorinated hydrocarbon vapors from cleaning and degreasing activities, poses a special risk.

- **Do not use electric arcs in the presence of chlorinated hydrocarbon vapors—highly toxic phosgene may be produced.**

Metal coatings such as paint, plating, or galvanizing may generate harmful fumes when heated. Residues from cleaning materials may also be harmful.

- **Avoid arc operations on parts with phosphate residues (anti-rust, cleaning preparations)—highly toxic phosphine may be produced.**

To find the quantity and content of fumes and gases, you can take air samples. By analyzing these samples, you can find out what respiratory protection you need. One recommended sampling method is to take air from inside the worker's helmet or from the worker's breathing zone. See AWS F1.1, *Methods for Sampling and Analyzing Gases for Welding and Allied Processes*, available from the American Welding Society, 550 N.W. Le Jeune Rd., Miami, FL 33126.

Read and understand the manufacturer's instructions and the precautionary labels on the products used in welding and cutting. Ask your welding products supplier for a copy of Praxair's free safety booklet, P-52-529, *Precautions and Safe Practices for Electric Welding and Cutting*, and for other manufacturers' safety publications. For a detailed treatment, get ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, published by the American Welding Society, or see OSHA's Web site at <http://www.osha-slc.gov/SLTC/weldingcuttingbrazing/>.

NOTES TO PHYSICIAN:

Acute: Gases, fumes, and dusts may cause irritation to the eyes, lungs, nose, and throat. Some toxic gases associated with welding and related processes may cause pulmonary edema, asphyxiation, and death. Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, difficulty breathing, frequent coughing, or chest pains.

Chronic: Protracted inhalation of air contaminants may lead to their accumulation in the lungs, a condition that may be seen as dense areas on chest x-rays. The severity of

change is proportional to the length of exposure. The changes seen are not necessarily associated with symptoms or signs of reduced lung function or disease. In addition, the changes on x-rays may be caused by non-work-related factors such as smoking, etc.

PROTECTIVE CLOTHING AND EQUIPMENT FOR WELDING OPERATIONS:

PROTECTIVE GLOVES: Wear welding gloves.

EYE PROTECTION: Wear a helmet or use a face shield with a filter lens. Select lens per ANSI Z49.1. Provide protective screens and flash goggles if needed to protect others; select per OSHA 29 CFR 1910.133.

OTHER PROTECTIVE EQUIPMENT: Wear hand, head, and body protection. (See ANSI Z49.1.) Worn as needed, these help prevent injury from radiation, sparks, and electrical shock. Minimum protection includes welder's gloves and a face shield. For added protection, consider arm protectors, aprons, hats, shoulder protection, and dark, substantial clothing.

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE: *High-pressure gas.* Use piping and equipment adequately designed to withstand pressures to be encountered. Use a backflow preventive device in the piping. **Gas can cause rapid suffocation due to oxygen deficiency.** Store and use with adequate ventilation. Close valve after each use; keep closed even when empty. **Never work on a pressurized system.** If there is a leak, close the cylinder valve. Blow the system down in a safe and environmentally sound manner in compliance with all federal, state, and local laws; then repair the leak. **Never place a compressed gas cylinder where it may become part of an electrical circuit**

Mixtures. When you mix two or more gases or liquefied gases, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Remember, gases and liquids have properties that can cause serious injury or death.

HAZARD RATING SYSTEMS:

NFPA RATINGS:

HEALTH = 0
FLAMMABILITY = 0
INSTABILITY = 0
SPECIAL = None

HMIS RATINGS:

HEALTH = 0
FLAMMABILITY = 0
PHYSICAL HAZARD = 0

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED: CGA-350
PIN-INDEXED YOKE: Not applicable.
ULTRA-HIGH-INTEGRITY CONNECTION: Not applicable.

Use the proper CGA connections. **DO NOT USE ADAPTERS.** Additional limited-standard connections may apply. See CGA pamphlet V-1 listed below.

Product: Compressed gases, n.o.s. P-6291-A
(Nitrogen, Hydrogen)

Date: December 2007

Ask your supplier about free Praxair safety literature as referred to in this MSDS and on the label for this product. Further information can be found in the following materials published by the Compressed Gas Association, Inc. (CGA), 4221 Walney Road, 5th Floor, Chantilly, VA 20151-2923, Telephone (703) 788-2700, <http://www.cganet.com/Publication.asp>.

- AV-1 *Safe Handling and Storage of Compressed Gases*
- G-5 *Hydrogen*
- G-5.3 *Commodity Specification for Hydrogen*
- G-10.1 *Commodity Specification for Nitrogen*
- P-1 *Safe Handling of Compressed Gases in Containers*
- P-9 *Inert Gases—Argon, Nitrogen, and Helium*
- SB-2 *Oxygen-Deficient Atmospheres*
- V-1 *Compressed Gas Cylinder Valve Inlet and Outlet Connections*
- V-7 *Standard Method of Determining Cylinder Valve Outlet Connections for Industrial Gas Mixtures*
- *Handbook of Compressed Gases, Fourth Edition*

Product: Compressed gases, n.o.s. P-6291-A
(Nitrogen, Hydrogen)

Date: December 2007

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Praxair, Inc., it is the user's obligation to determine the conditions of safe use of the product.

Praxair MSDSs are furnished on sale or delivery by Praxair or the independent distributors and suppliers who package and sell our products. To obtain current MSDSs for these products, contact your Praxair sales representative or local distributor or supplier, or download from www.praxair.com. If you have questions regarding Praxair MSDSs, would like the form number and date of the latest MSDS, or would like the names of the Praxair suppliers in your area, phone or write the Praxair Call Center (**Phone:** 1-800-PRAXAIR; **Address:** Praxair Call Center, Praxair, Inc., PO Box 44, Tonawanda, NY 14151-0044).

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Praxair, Inc.
39 Old Ridgebury Road
Danbury, CT 06810-5113

Praxair Material Safety Data Sheet

4

1. Chemical Product and Company Identification

Product Name: Argon, compressed (MSDS No. P-4563-I)	Trade Names: Argon
Chemical Name: Argon	Synonyms: Shielding gas, argon 40
Chemical Family: Rare gas	Product Grades: 4.8 Oxygen Free, 4.8 Zero, 4.8 Inductively Coupled Plasma, 5.5 Trace Analytical, 6.0 Research, Industrial Gas
Telephone:	Company Name: Praxair, Inc. 39 Old Ridgebury Road Danbury, CT 06810-5113
Emergencies: 1-800-645-4633*	
CHEMTREC: 1-800-424-9300*	
Routine: 1-800-PRAXAIR	

*Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier, Praxair sales representative, or call 1-800-PRAXAIR (1-800-772-9247).

2. Hazards Identification

EMERGENCY OVERVIEW

**CAUTION! High-pressure gas.
Can cause rapid suffocation.
May cause dizziness and drowsiness.
Self-contained breathing apparatus and protective clothing
may be required by rescue workers.
Under ambient conditions, this is a colorless, odorless,
tasteless gas with no odor.**

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

POTENTIAL HEALTH EFFECTS:

Effects of a Single (Acute) Overexposure

Inhalation. Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.

Skin Contact. No harm expected.

Swallowing. An unlikely route of exposure. This product is a gas at normal temperature and pressure.

Eye Contact. No harm expected.

Effects of Repeated (Chronic) Overexposure. No harm expected.

Other Effects of Overexposure. Argon is an asphyxiant. Lack of oxygen can kill.

Medical Conditions Aggravated by Overexposure. The toxicology and the physical and chemical properties of argon suggest that overexposure is unlikely to aggravate existing medical conditions.

CARCINOGENICITY: Argon is not listed by NTP, OSHA, or IARC.

POTENTIAL ENVIRONMENTAL EFFECTS: None known. For further information, see section 12, Ecological Information.

3. Composition/Information on Ingredients

See section 16 for important information about mixtures.

COMPONENT	CAS NUMBER	CONCENTRATION
Argon	7440-37-1	>99%*

*The symbol > means "greater than."

4. First Aid Measures

INHALATION: Immediately remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.

SKIN CONTACT: Flush with water. If discomfort persists, seek medical attention.

SWALLOWING: An unlikely route of exposure. This product is a gas at normal temperature and pressure.

EYE CONTACT: Flush eyes thoroughly with warm water. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are thoroughly flushed. If discomfort persists, seek medical attention.

NOTES TO PHYSICIAN: There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Refer to section 16.

5. Fire Fighting Measures

FLAMMABLE PROPERTIES: Nonflammable

SUITABLE EXTINGUISHING MEDIA: Argon cannot catch fire. Use media appropriate for surrounding fire.

PRODUCTS OF COMBUSTION: Not applicable.

PROTECTION OF FIREFIGHTERS: CAUTION! High-pressure gas. Evacuate all personnel from danger area. Immediately deluge cylinders with water from maximum distance until cool; then move them away from fire area if without risk. Self-contained breathing apparatus may be required by rescue workers. (See section 16.) On-site fire brigades must comply with OSHA 29 CFR 1910.156.

Specific Physical and Chemical Hazards. Heat of fire can build pressure in cylinder and cause it to rupture. No part of cylinder should be subjected to a temperature higher than 125°F (52°C). Argon cylinders are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.)

Protective Equipment and Precautions for Firefighters. Firefighters should wear personal protective equipment and fire-fighting turnout gear as appropriate for surrounding fire.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

CAUTION! High-Pressure Gas.

Personal Precautions. Argon is an asphyxiant. Lack of oxygen can kill. Evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Shut off leak if without risk. Ventilate area of leak or move cylinder to a well-ventilated area. Test for sufficient oxygen, especially in confined spaces, before allowing reentry.

Environmental Precautions. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations. If necessary, call your local supplier for assistance.

7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING: Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open valve.. If valve is hard to open, discontinue use and contact your supplier. Close valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the cylinder. High temperatures may damage the cylinder and could cause the pressure relief device to fail prematurely, venting the cylinder contents. For other precautions in using this mixture, see section 16.

PRECAUTIONS TO BE TAKEN IN STORAGE: Store and use with adequate ventilation. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 125°F (52°C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

RECOMMENDED PUBLICATIONS: For further information on storage, handling, and use, see Praxair publication P-14-153, *Guidelines for Handling Gas Cylinders and Containers*. Obtain from your local supplier.

8. Exposure Controls/Personal Protection

See section 16 for important information on by-products generated during use in welding and cutting.

COMPONENT	OSHA PEL	ACGIH TLV-TWA (2009)
Argon	Not Established.	Simple asphyxiant

IDLH = Not available.

ENGINEERING CONTROLS:

Local Exhaust: Use a local exhaust system, if necessary, to prevent oxygen deficiency and keep hazardous fumes and gases below applicable exposure limits in the worker's breathing zone.

Mechanical (General): General exhaust ventilation may be acceptable if it can maintain an adequate supply of air and keep hazardous fumes and gases below applicable TLVs in the worker's breathing zone.

Special: None

Other: None

PERSONAL PROTECTIVE EQUIPMENT:

Skin Protection. Wear work gloves when handling cylinders; welding gloves for welding. Metatarsal shoes for cylinder handling. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133. For welding, see section 16. Regardless of protective equipment, never touch live electrical parts.

Eye/Face Protection. Wear safety glasses when handling cylinders. Select in accordance with OSHA 29 CFR 1910.133. For welding, see section 16.

Respiratory Protection. A respiratory protection program that meet OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable) requirements must be followed whenever workplace conditions warrant respirator use. Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure (e.g., an organic vapor cartridge). For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus. Adequate ventilation must keep worker exposure below applicable exposure limits for fumes, gases, and other by products of welding.

9. Physical and Chemical Properties

APPEARANCE:	Colorless gas
ODOR:	Odorless
ODOR THRESHOLD:	Not applicable.
PHYSICAL STATE:	Gas at normal temperature and pressure
pH:	Not applicable.
MELTING POINT at 1 atm:	-308.83°F (-189.35°C)
BOILING POINT at 1 atm:	-302.57°F (-185.87°C)
FLASH POINT (test method):	Not applicable.
EVAPORATION RATE (Butyl Acetate = 1):	Not applicable.
FLAMMABILITY:	Nonflammable
FLAMMABLE LIMITS IN AIR, % by volume:	LOWER: Not applicable. UPPER: Not applicable.
VAPOR PRESSURE at 68°F (20°C):	Not applicable.
VAPOR DENSITY at 70°F (21.1°C) and 1 atm:	0.103 lb/ft ³ (1.654 kg/m ³)
SPECIFIC GRAVITY (H₂O = 1) at boiling point:	1.40
SPECIFIC GRAVITY (Air = 1) at 70°F (21.1°C) and 1 atm:	1.38

SOLUBILITY IN WATER, vol/vol at 32°F (0°C) and 1 atm:	0.056
PARTITION COEFFICIENT: n-octanol/water:	Not available.
AUTIGNITION TEMPERATURE:	Not applicable.
DECOMPOSITION TEMPERATURE:	None
PERCENT VOLATILES BY VOLUME:	100
MOLECULAR WEIGHT:	39.95
MOLECULAR FORMULA:	Ar

10. Stability and Reactivity

CHEMICAL STABILITY: Unstable Stable

CONDITIONS TO AVOID: None known.

INCOMPATIBLE MATERIALS: None known. Argon is chemically inert.

HAZARDOUS DECOMPOSITION PRODUCTS: Ozone and nitrogen oxides may be formed by radiation from arc. (See section 16.) Other decomposition products of normal operation originate from volatilization, reaction, or oxidation of the material being worked.

POSSIBILITY OF HAZARDOUS REACTIONS: May Occur Will Not Occur

11. Toxicological Information

ACUTE DOSE EFFECTS: Argon is a simple asphyxiant. The welding process may generate hazardous fumes and gases. (See sections 10 and 16.)

STUDY RESULTS: No known effects.

12. Ecological Information

ECOTOXICITY: No known effects.

OTHER ADVERSE EFFECTS: Argon does not contain any Class I or Class II ozone-depleting chemicals.

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier. For emergency disposal, secure cylinder in a well-ventilated area or outdoors; then slowly discharge gas to the atmosphere.

14. Transport Information

DOT/IMO SHIPPING NAME: Argon, compressed			
HAZARD CLASS: 2.2	PACKING GROUP/Zone: NA*	IDENTIFICATION NUMBER: UN1006	PRODUCT RQ: None
SHIPPING LABEL(S): NONFLAMMABLE GAS			
PLACARD (when required): NONFLAMMABLE GAS			
*NA-Not applicable.			

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, nonventilated compartment of a vehicle can present serious safety hazards.

Shipment of compressed gas cylinders that have been filled without the owner's consent is a violation of federal law [49 CFR 173.301(b)].

MARINE POLLUTANTS: Argon is not listed as a marine pollutant by DOT.

15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, state, and local regulations.

U.S. FEDERAL REGULATIONS:

EPA (ENVIRONMENTAL PROTECTION AGENCY)

CERCLA: COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (40 CFR Parts 117 and 302):

Reportable Quantity (RQ): None

SARA: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:

SECTIONS 302/304: Require emergency planning based on Threshold Planning Quantity (TPQ) and release reporting based on Reportable Quantities (RQ) of Extremely Hazardous Substances (EHS) (40 CFR Part 355):

TPQ: None

EHS RQ (40 CFR 355): None

SECTIONS 311/312: Require submission of MSDS and reporting of chemical inventories with identification of EPA hazard categories. The hazard categories for this product are as follows:

IMMEDIATE: No

PRESSURE: Yes

REACTIVITY: No

FIRE: No

SECTION 313: Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

Argon is not subject to reporting under Section 313.

40 CFR 68: RISK MANAGEMENT PROGRAM FOR CHEMICAL ACCIDENTAL RELEASE PREVENTION: Requires development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

Argon is not listed as a regulated substance.

TSCA: TOXIC SUBSTANCES CONTROL ACT: Argon is listed on the TSCA inventory.

OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION: 29 CFR 1910.119: PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS: Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

Argon is not listed in Appendix A as a highly hazardous chemical.

STATE REGULATIONS:

CALIFORNIA: Argon is not listed by California under the SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (Proposition 65).
PENNSYLVANIA: Argon is subject to the PENNSYLVANIA WORKER AND COMMUNITY RIGHT-TO-KNOW ACT (35 P.S. Sections 7301-7320).

16. Other Information

Read and understand all labels and instructions supplied with all containers of this product.
ADDITIONAL SAFETY AND HEALTH HAZARDS: Using argon in welding and cutting may create additional hazards:

Read and understand the manufacturer's instructions and the precautionary labels on the products used in welding and cutting. For other safe practices information and a more detailed description of the health hazards of welding and their consequences, ask your welding products supplier for a copy of Praxair's free safety booklet, P-52-529, *Precautions and Safe Practices for Electric Welding and Cutting*, and for other manufacturers' safety publications. For a detailed treatment, get ANSI Z49.1, *Safety in Welding and Cutting and Allied Processes*, published by the American Welding Society (AWS), 550 N.W. Le Jeune Rd., Miami, FL 33126, <http://www.aws.org/>, or see OSHA's Web site at <http://www.osha-slc.gov/SLTC/weldingcuttingbrazing/>. Order AWS documents from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112-5710, <http://global.ihc.com/>. FUMES AND GASES can be dangerous to your health and may cause serious lung disease.

- Keep your head out of fumes. Do not breathe fumes and gases. Use enough ventilation, local exhaust, or both to keep fumes and gases from your breathing zone and the general area. Short-term overexposure to fumes may result in dizziness, nausea, dryness or irritation of nose, throat, and eyes, or other similar discomfort.

Fumes and gases cannot be classified simply. The amount and type depend on the metal being worked and the process, procedure, equipment, and supplies used. Possible dangerous materials may be found in fluxes, electrodes, and other materials. Get an MSDS for every material you use. Contaminants in the air may add to the hazard of fumes and gases. One such contaminant, chlorinated hydrocarbon vapors from cleaning and degreasing activities, poses a special risk.

- Do not use electric arcs in the presence of chlorinated hydrocarbon vapors—highly toxic phosgene may be produced.
- Metal coatings such as paint, plating, or galvanizing may generate harmful fumes when heated. Residues from cleaning materials may also be harmful.
- Avoid arc operations on parts with phosphate residues (anti-rust, cleaning preparations)—highly toxic phosphine may be produced.

To find the quantity and content of fumes and gases, you can take air samples. By analyzing these samples, you can find out what respiratory protection you need. One recommended sampling method is to take air from inside the worker's helmet or from the worker's breathing zone. See AWS F1.1, *Methods for Sampling and Analyzing Gases for*

Welding and Allied Processes, available from the American Welding Society, 550 N.W. Le
Jeune Rd., Miami, FL 33126.

NOTES TO PHYSICIAN:

Acute: Gases, fumes, and dusts may cause irritation to the eyes, lungs, nose, and throat. Some toxic gases associated with welding and related processes may cause pulmonary edema, asphyxiation, and death. Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, difficulty breathing, frequent coughing, or chest pains.

Chronic: Prolonged inhalation of air contaminants may lead to their accumulation in the lungs, a condition that may be seen as dense areas on chest x-rays. The severity of change is proportional to the length of exposure. The changes seen are not necessarily associated with symptoms or signs of reduced lung function or disease. In addition, the changes on x-rays may be caused by non-work-related factors such as smoking, etc.

PROTECTIVE CLOTHING AND EQUIPMENT FOR WELDING OPERATIONS:

PROTECTIVE GLOVES: Wear welding gloves.
EYE PROTECTION: Wear a helmet or use a face shield with a filter lens. Select lens per ANSI Z49.1. Provide protective screens and flash goggles if needed to protect others; select per OSHA 29 CFR 1910.133.

OTHER PROTECTIVE EQUIPMENT: Wear hand, head, and body protection. (See ANSI Z49.1.) Worn as needed, these help prevent injury from radiation, sparks, and electrical shock. Minimum protection includes welder's gloves and a face shield. For added protection, consider arm protectors, aprons, hats, shoulder protection, and dark, substantial clothing.

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE: High-Pressure

Gas. Use piping and equipment adequately designed to withstand pressures to be encountered. Gas can cause rapid suffocation. Store and use with adequate ventilation at all times. Arcs and sparks can ignite combustible materials. Prevent fires. Refer to NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hotwork, published by the National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101, Telephone (800) 344-3555, <http://www.nfpa.org/catalog/>. Do not strike an arc on the cylinder. The defect produced by an arc burn could lead to cylinder rupture. Never work on a pressurized system. If there is a leak, close the cylinder valve. Blow the system down in a safe and environmentally sound manner in compliance with all federal, state, and local laws; then repair the leak. Never place a compressed gas cylinder where it may become part of an electrical circuit. When using compressed gases in and around electric welding applications, never ground the cylinders. Grounding exposes the cylinders to damage by the electric welding arc.

Mixtures. When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Chemicals have properties that can cause serious injury or death.

HAZARD RATING SYSTEMS:

NFPA RATINGS:
HEALTH = 0
FLAMMABILITY = 0
INSTABILITY = 0

HMS RATINGS:
HEALTH = 0
FLAMMABILITY = 0
PHYSICAL HAZARD = 3

NFPA RATINGS:

SPECIAL

HMS RATINGS:

= SA (CGA recommends this to designate Simple Asphyxiant.)

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED:

CGA-580	0-3000 psig
CGA-680	3001-5500 psig
CGA-677	5001-7500 psig
CGA-960 (Medical Use)	0-3000 psig
CGA-718	0-3000 psig

Use the proper CGA connections. **DO NOT USE ADAPTERS.** Additional limited-standard connections may apply. See CGA pamphlet V-1 listed below.

Ask your supplier about free Praxair safety literature as referred to in this MSDS and on the label for this product. Further information can be found in the following materials published by the Compressed Gas Association, Inc. (CGA), 4221 Walney Road, 5th Floor, Chantilly, VA 20151-2923, Telephone (703) 788-2700, <http://www.cganet.com/Publication.asp>.

AV-1	Safe Handling and Storage of Compressed Gases
G-11.1	Commodity Specification for Argon
P-1	Safe Handling of Compressed Gases in Containers
P-9	Inert Gases—Argon, Nitrogen, and Helium
SB-2	Oxygen-Deficient Atmospheres
V-1	Compressed Gas Cylinder Valve Inlet and Outlet Connections
—	Handbook of Compressed Gases, Fourth Edition

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

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