

I N D I R E C T   A I R   C A R R I E R   C E R T I F I C A T E

INTERGLOBAL FORWARDING SERVICE INC  
1A COLONY ROAD  
JERSEY CITY NJ 07305  
22-2443386  
TELEPHONE NUMBER : 2018588560  
TSA APPROVAL NUMBER: EA9402060

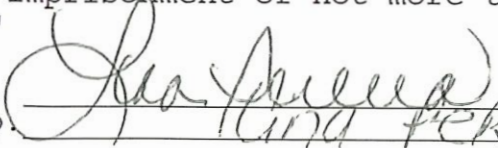
Airline: C.A.L. CARGO AIR LINES LTD

Air Waybill	: 700-74119205	Our Reference:	01NJAE24669696
Scheduled Flt:	0552	Departure	: 12 JAN 24
Origin	: JFK	Destination	: TLV
Pieces	: 6	Gross Wt	: 4491.4 K

Total Number and name of each unknown shipper represented is 0

Items being offered for transportation less than 16ounces 0

"INTERGLOBAL FORWARDING SERVICE INC  
is in compliance with its TSA-approved security program and  
all applicable security directives. Our number assigned by  
TSA is EA9402060. All cargo tendered in conjunction with  
this certification was either 1) accepted from a known  
shipper or an unknown shipper in accordance with TSA  
requirements specified in the Indirect Air Carrier Standard  
Security Program or 2) accepted under transfer from another  
aircraft operator, foreign air carrier, or IAC operating  
under a TSA-approved or accepted security program. The  
individual whose name appears below certifies that he or she  
is an employee or authorized representative of  
INTERGLOBAL FORWARDING SERVICE INC  
and understands that any fraudulent or false statement made  
in connection with this certification may subject this  
individual and INTERGLOBAL FORWARDING SERVICE INC  
to both (1) civil penalties under 49 CFR 1540.103(b) and (2)  
fines and/or imprisonment of not more than 5 years under  
18 USC 1001."

Signature of IAC Rep. 

Print name of IAC Rep. And PEREIRA

Date 1/15/24

Accepting Airline: C.A.L. CARGO AIR LINES LTD

Airline representative's Signature and ID number: \_\_\_\_\_

700 |JFK| 7411 9205

700-74119205

Shipper's Name and Address <b>INTERGLOBAL FORWARDING SERVICES INC</b> 1A COLONY ROAD JERSEY CITY NJ 07305 22-2443386		Shipper's Account Number		Not Negotiable <b>CAL CARGO AILINES LTD</b> <b>Air Waybill C/O LUFTHANSA</b> BUILDING 261 JFK INTL AIRPORT JAMAICA NY TEL. NO. : Copies 1, 2 and 3 of this Air Waybill are originals and have the same validity	
Consignee's Name and Address <b>GOVERNMENT OF ISRAEL, M.</b> <b>MISRAD HABITACHON</b> <b>HAKIRYA KAPLAN ST, TEL AVIV, ISRAEL</b> 500100581		Consignee's Account Number		It is agreed that the goods described herein are accepted in apparent good order and condition (except as noted) for carriage SUBJECT TO THE CONDITIONS OF THE CONTRACT ON THE REVERSE HEREOF. ALL GOODS MAY BE CARRIED BY ANY OTHER MEANS INCLUDING ROAD HEREON BY THE SHIPPER, AND SHIPPER AGREES THAT THE SHIPMENT MAY BE CARRIED VIA INTERMEDIATE STOPPING PLACES WHICH THE CARRIER DEEMS APPROPRIATE. THE SHIPPER'S ATTENTION IS DRAWN TO THE NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY. Shipper may increase such limitation of liability by declaring a higher value for carriage and paying supplemental charge if required.	
Issuing Carrier's Agent Name and City <b>INTERGLOBAL FORWARDING SERVICES, INC</b> 1A COLONY ROAD JERSEY CITY, NJ 07305		Accounting Information <b>FILE# 01NJAE24669696</b> <b>FLT # 0552</b> <b>SHP REF 195658</b> <b>DATE 12 JAN 24</b> <b>BILL IFS001</b>			
Agent's IATA Code <b>0119839012/</b>		Account No.			
Airport of Departure (Addr. of First Carrier) and Requested Routing <b>J.F.KENNEDY AIRPORT</b>		Reference Number <b>PREPARED BY LINA</b>			
To	By First Carrier	To	By	To	By
<b>TLV</b>	<b>C.A.L. CARGO AIR L.I.N.</b>				
Airport of Destination <b>BEN GURION AIRPORT</b>		Requested Flight/Date <b>0552/12</b>		Amount of Insurance <b>XXX</b>	
Handling Information <b>DANGEROUS GOODS AS PER ASSOCIATED SHIPPER'S DECLARATION CARGO AIRCRAFT ONLY</b> <b>LOT # E002897 DEST: LL HAWB# 172142 PO#4441213400 OVERPACK USED</b> <b>P.O. BOX 7022, TEL AVIV, ISRAEL</b> <b>DIMS: 6048X40X60</b> These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Ultimate destination <b>ISRAEL</b> Diversion contrary to U.S. law prohibited		Insurance - If carrier offers insurance, and such insurance is requested in accordance with the conditions thereof, indicate amount to be insured in figures in box marked "Amount of Insurance"			
No. of Pieces RCP	Gross Weight	Kg Lb	Rate Class	Commodity Item No.	Chargeable Weight
6	4491.4	K			4491.5
ECCNS: 1A607.					2.86
AES X20240105330856				Total	
6		4491.4		12845.69	
Prepaid		Weight Charge		Collect	
				12845.69	
Valuation Charge					
Tax					
Total Other Charges Due Agent					
Total Other Charges Due Carrier				9387.41	
Total Prepaid		Total Collect		22233.10	
Currency Conversion Rates		CC Charges in Dest. Currency		05 JAN 2024 J.F.KENNEDY AIRPORT LINA PEREIRA	
For Carriers Use only at Destination		Charges at Destination		Total Collect Charges	
				700-74119205	

ORIGINAL (FOR SHIPPER)



Pgm: AM0001  
Date: 1/05/24

C O N S O L I D A T I O N    M A N I F E S T

Page: 1  
Time: 12:14:03

G&B PACKING COMPANY, INC.

Reference	195658
MWB	700-74119205
Flight#	0552    ETD: 1/12/24    00:00
	ETA: 1/13/24    00:00
Consigned To	GOVERNMENT OF ISRAEL, M.O.D.
	MISRAD HABITACHON
	HAKIRYA KAPLAN ST, TEL AVIV, ISRAEL
Carrier	C.A.L. CARGO AIR LINES LTD
File#	01NUTAE24669696
Origin/Dest	JFK TIV

INTERGLOBAL FORWARDING SERVICE INC
1A COLONY ROAD
JERSEY CITY NJ 07305
22-2443386
Tel: 2018588560
Fax: 2013391762

ORG	DES	Forwarders	File #	Pieces	Kilos	Cbm	Commodity Description
JFK	TIV	Waybill	01NUTAE24669695	6 PCS	4491.4	11.327	UN0303 AMMUNITION SMOKE CLASS 1.4G, P/I: 130 EX-9711093 AES X20240105330856
NO. OF HOUSE BILLS				1	GRAND TOTAL:		
				6	4491.44	11.327	

700 | JFK | 7411 9205

HAWB: 172142

Shipper's Name and Address GOVERNMENT OF ISRAEL MOD 800 SECOND AVENUE NEW YORK, NY 10017 530111477		Shipper's Account Number		Not Negotiable INTERGLOBAL FORWARDING SVCS., INC. Air Waybill 1A COLONY ROAD JERSEY CITY NJ 07305	
Consignee's Name and Address GOVERNMENT OF ISRAEL MOD MISRAD HABITACHON HAKIRYA KAPLAN ST, TEL AVIV, ISRAEL 500100581		Consignee's Account Number		Issued by TEL. NO.: 2013391600	
Issuing Carrier's Agent Name and City INTERGLOBAL FORWARDING SERVICES, INC 1A COLONY ROAD JERSEY CITY, NJ 07305		Accounting Information FILE# 01NJAE24669695 FLT # 0552 SHP REF 172142		DATE 12 JAN 24 BILL GOINYC	
Agent's IATA Code 0119839012/		Account No.		Copies 1, 2 and 3 of this Air Waybill are originals and have the same validity	
Airport of Departure (Addr. of First Carrier) and Requested Routing J.F. KENNEDY AIRPORT		Requested Flight/Date 0552/12		Declared Value for Customs NVD	
To By First Carrier TIV INTERGLOBAL FORWARDI		To By To By		Declared Value for Carriage NVD	
Airport of Destination BEN GURION AIRPORT		Requested Flight/Date 0552/12		Amount of Insurance XXX	
Handling Information DANGEROUS GOODS AS PER ASSOCIATED SHIPPER'S DECLARATION CARGO AIRCRAFT ONLY LOT # E002897 DEST: LL HAWB# 172142 PO# 4441213400 OVERPACK USED P.O. BOX 7022, TEL AVIV, ISRAEL		These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Ultimate destination ISRAEL		Diversion contrary to U.S. law prohibited	
No. of Pieces BUP	Gross Weight	Kg Lb	Commodity Item No.	Chargeable Weight	Rate / Charge
6	4491.4 K			4491.5	
ECCNS: 1A607. 60 (48X40X60) In					
AES X20240105330856					
6	4491.4				
Prepaid		Weight Charge		Collect	
		Valuation Charge			
		Tax			
		Total Other Charges Due Agent			
		Total Other Charges Due Carrier			
Total Prepaid		Total Collect			
Currency Conversion Rates		CC Charges in Dest. Currency		05 JAN 2024 J.F. KENNEDY AIRPORT LINA PEREIRA	
For Carriers Use only at Destination		Charges at Destination		Total Collect Charges	

ORIGINAL (FOR SHIPPER)

172142



# Commercial Invoice

Page 1/1  
Invoice LOT 11-23 4230D  
Date 11/27/2023



388 Kinsman Road  
Jamestown PA 16134

Tel: 724-932-2177  
Fax: 724-932-2166  
E-Mail: [Sales@CombinedSystems.com](mailto:Sales@CombinedSystems.com)  
FEL - 8-PA-085-20-1D-12510

Bill To: GOVERNMENT OF ISRAEL  
MINISTRY OF DEFENSE  
HAKIRYA, KAPLAN STREET  
TEL AVIV  
Israel

Ship To: GOVERNMENT OF ISRAEL  
MINISTRY OF DEFENSE  
HAKIRYA, KAPLAN STREET  
TEL AVIV  
Israel

Purchase Order No.	Payment Terms	Shipping Method	F.O.B.	Rep.	Master No.
4441213400					44,306
Item Number	Description	Ordered	Unit Price	Ext. Price	
10	CART 40MM CS	17,568.00			
				Subtotal	
				Total	

The Contractor (CSI) acknowledges U.S. Government funds are being used by the Government of Israel to finance this purchase and certifies that the invoice(s) submitted with respect thereto are free from any material false statement or misrepresentation and do not omit any material facts.

The Contractor (CSI) acknowledges that U.S. Government funds are being used by the Government of Israel to finance this purchase and certifies that no shipping cost has been incurred by this firm for exporting this materiel from the United States and no shipping cost is included in the sales price or otherwise included in the invoiced amount for which payment is requested.

These items are controlled by the U.S. Government and authorized for export only to ISRAEL for use by GOVERNMENT OF ISRAEL MINISTRY OF DEFENSE. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. Government or as otherwise authorized by U.S. law and regulations.

U.S. DEPARTMENT OF COMMERCE LICENSE D1296208 - ECCN 1A607.e, Schedule B 9306.90.0040

# Pack List

Page 1/1  
Invoice LOT 11-23 4230D  
Date 11/27/2023



388 Kinsman Road  
Jamestown PA 16134

Tel: 724-932-2177  
Fax: 724-932-2166  
E-Mail: [Sales@CombinedSystems.com](mailto:Sales@CombinedSystems.com)

Bill To: GOVERNMENT OF ISRAEL  
MINISTRY OF DEFENSE  
HAKIRYA, KAPLAN STREET  
TEL AVIV  
Israel

Ship To: GOVERNMENT OF ISRAEL  
MINISTRY OF DEFENSE  
HAKIRYA, KAPLAN STREET  
TEL AVIV  
Israel

Purchase Order No.	Payment Terms	Shipping Method	F.O.B.	Rep.	Master No.
4441213400					44,306
Item Number	Description			Ordered	
10	CART 40MM CS				17,568

The Contractor ( CSI ) acknowledges U.S. Government funds are being used by the Government of Israel to finance this purchase and certifies that the invoice(s) submitted with respect thereto are free from any material false statement or misrepresentation and do not omit any material facts.

The Contractor ( CSI ) acknowledges that U.S. Government funds are being used by the Government of Israel to finance this purchase and certifies that no shipping cost has been incurred by this firm for exporting this materiel from the United States and no shipping cost is included in the sales price or otherwise included in the invoiced amount for which payment is requested.



## SHIPPER'S DECLARATION FOR DANGEROUS GOODS

Shipper  
COMBINED SYSTEMS, INC.  
388 KINSMAN ROAD  
JAMESTOWN, PA 16134  
U.S.A.

Air Waybill No. **700-7411-9205**

Page 1 of 2 Pages

Shipper's Reference Number  
(optional)

Consignee  
Government of Israel  
Ministry of Defense  
Hakirya, Tel Aviv, Israel

For optional use  
for  
Company logo  
name and address

Two completed and signed copies of this Declaration must  
be handed to the operator.

## WARNING

Failure to comply in all respects with the applicable  
Dangerous Goods Regulations may be in breach of  
the applicable law, subject to legal penalties.

## TRANSPORT DETAILS

This shipment is within the  
limitations prescribed for:  
(delete non-applicable)

Airport of Departure:

~~PASSENGER  
AND CARGO  
AIRCRAFT~~

CARGO  
AIRCRAFT  
ONLY

**JFK  
New York  
USA**

Airport of Destination: **Tel Aviv, Israel**

Shipment type: (delete non-applicable)

NON-RADIOACTIVE ~~XXXXXXX~~

## NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification						
UN or ID No.	Proper Shipping Name	Class or Division (Subsidiary Risk)	Pack- ing Group	Quantity and type of packing	Packing Inst.	Authorization
UN0303	AMMUNITION SMOKE	1.4G		36 STEEL DRUMS X 23 KILOGRAM NET N.E.W. = 11.20 KILOGRAM  OVERPACK USED X5 #1-5  TOTAL QUANTITY PER OVERPACK 828 KG	130	EX-9711093

## Additional Handling Information

EMERGENCY CONTACT: CHEMTEL +1-813-248-0585 COMBINED SYSTEMS CONTRACT-MIS0007663  
36 (1A2) STEEL DRUMS IN OVER-PACK AS 1 SKID FOR HANDLING PURPOSES.  
TOTAL NET EXPLOSIVE WEIGHT 2016KG

I hereby declare that the contents of this consignment are fully and  
accurately described above by the proper shipping name, and are  
classified, packaged, marked and labelled/placarded, and are in all  
respects in proper condition for transport according to applicable  
international and national governmental regulations. I declare that all  
of the applicable air transport requirements have been met.

Name/Title of Signatory  
MIKE RILEY SHIPPING MANAGER

Place and Date  
JAMESTOWN PA 22/DEC/2023

Signature  
(See warning above)



## SHIPPER'S DECLARATION FOR DANGEROUS GOODS

Shipper  
COMBINED SYSTEMS, INC.  
388 KINSMAN ROAD  
JAMESTOWN, PA 16134  
U.S.A.

Air Waybill No. 700-7411-9205

Page 2 of 2 Pages

Shipper's Reference Number  
(optional)

Consignee  
Government of Israel  
Ministry of Defense  
Hakirya, Tel Aviv, Israel

For optional use  
for  
Company logo  
name and address

Two completed and signed copies of this Declaration must  
be handed to the operator.

## WARNING

Failure to comply in all respects with the applicable  
Dangerous Goods Regulations may be in breach of  
the applicable law, subject to legal penalties.

## TRANSPORT DETAILS

This shipment is within the  
limitations prescribed for:  
(delete non-applicable)

Airport of Departure:

~~PASSENGER  
AND CARGO  
AIRCRAFT~~

CARGO  
AIRCRAFT  
ONLY

Airport of Destination:

Shipment type: (delete non-applicable)

NON-RADIOACTIVE ~~XXXXXXXXXX~~

## NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification						
UN or ID No.	Proper Shipping Name	Class or Division (Subsidiary Risk)	Pack- ing Group	Quantity and type of packing	Packing Inst.	Authorization
UN0303	AMMUNITION SMOKE	1.4G		3 STEEL DRUMS X 23 KILOGRAM NET N.E.W.= 11.20 KILOGRAM  OVERPACK USED X1 #6  TOTAL QUANTITY PER OVERPACK 69 KG	130	EX-9711093

## Additional Handling Information

EMERGENCY CONTACT: CHEMTEL-+1-813-248-0585 COMBINED SYSTEMS CONTRACT-MIS0007663  
3 (1A2) STEEL DRUMS IN OVER-PACK AS 1 SKID FOR HANDLING PURPOSES.  
TOTAL NET EXPLOSIVE WEIGHT 33.6KG

I hereby declare that the contents of this consignment are fully and  
accurately described above by the proper shipping name, and are  
classified, packaged, marked and labelled/placarded, and are in all  
respects in proper condition for transport according to applicable  
international and national governmental regulations. I declare that all  
of the applicable air transport requirements have been met.

Name/Title of Signatory  
MIKE RILEY SHIPPING MANAGER

Place and Date  
JAMESTOWN PA, 22/DEC/2023

Signature  
(See warning above)





U.S. Department  
of Transportation

Research and  
Special Programs  
Administration

The US Department of Transportation  
Competent Authority for the United States

APR 6 1971

400 Seventh Street SW  
Washington D.C. 20590

CLASSIFICATION OF EXPLOSIVES

Based upon a request by Lynn R. Coonrod on behalf of Combined Tactical Systems, Inc., P.O. Box 506, 388 Kinsman Road, Jamestown, Pennsylvania, the following items are classed in accordance with Section 173.56, Title 49, Code of Federal Regulations (49 CFR).

U.N. PROPER SHIPPING NAME AND NUMBER: Ammunition, Smoke, UN0303 (see note 1)

U.N. CLASSIFICATION CODE: 1.4G

<u>REFERENCE NUMBER</u>	<u>PRODUCT DESIGNATION/PART NUMBER</u>
EX-9611061	PAK3220, PAK3220D, PAK3230, PAK3230D, PAK3223, PAK3233, PAK3221, PAK3221D, PAK3231, PAK3231D
EX-9702113	PAK 3225, PAK 3235
EX-9707010	PAK 3320, PAK 3330, PAK 3340
EX-9708051	PAK2320, PAK2330, PAK2340
EX-9711093	PAK4200 (Model Number: #4220, #4220D, #4230, #4230D)
EX-9711095	PAK3400 (Model Number: #3420, #3430, #3440)
EX-9802070	6220, 6230
EX-9802111	PAK 4300 (Model 4320, Model 4330, Model 4340)
EX-9802114	PAK 3421, PAK 3431, PAK 3441
EX-9802115	PAK 2420, PAK 2430, PAK 2440
EX-9802141	640010 (Model 6420, Model 6430, Model 6440)
EX-9810023	6231, 6221, 8222, 8232
EX-9810043	8220, 8230

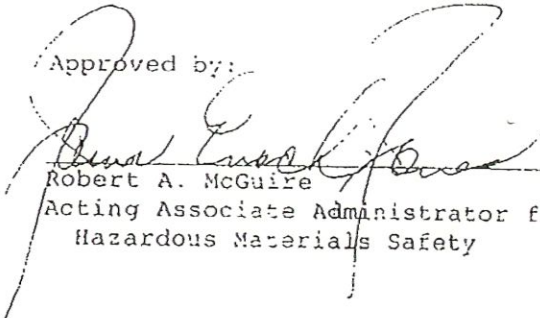
Note 1 - Outer packaging must be a UN1A2/Y/ metal drum. Each article must be placed in an individual paper tube and then the tubes must be tightly packed inside the metal drum in such a manner that would prevent movement of the articles inside the drum during transportation.

Coonrod, Combined Tactical Systems, Inc.

PAGE 2

Ammunition, Smoke, UN0303 (continued)

Approved by:



Robert A. McGuire

Acting Associate Administrator for  
Hazardous Materials Safety

APR 6 2000  
(DATE)





U.S. Department  
of Transportation

Research and  
Special Programs  
Administration

The US Department of Transportation  
Competent Authority for the United States

400 Seventh Street, S.W.  
Washington, D.C. 20590

CLASSIFICATION OF EXPLOSIVES

Based upon a request by Lynn R. Coonrod on behalf of Combined Tactical Systems, Inc., 388 Kinsman Road, P.O. Box 506, Jamestown, Pennsylvania, the following items are classed in accordance with Section 173.56, Title 49, Code of Federal Regulations (49 CFR).

U.N. PROPER SHIPPING NAME AND NUMBER: Ammunition, smoke, UN0303

U.N. CLASSIFICATION CODE: 1.4G

<u>REFERENCE NUMBER</u>	<u>PRODUCT DESIGNATION/PART NUMBER</u>
EX-9711094	PAK4200 (Model Number: #4210, #4210D)
EX-9711096	5210, 5220

U.N. PROPER SHIPPING NAME AND NUMBER: Ammunition, tear producing, UN0301

U.N. CLASSIFICATION CODE: 1.4G

<u>REFERENCE NUMBER</u>	<u>PRODUCT DESIGNATION/PART NUMBER</u>
EX-9711093	PAK4200 (Model Number: #4220, #4220D, #4230, #4230D)
EX-9711095	PAK3400 (Model Number: #3420, #3430, #3440)

U.N. PROPER SHIPPING NAME AND NUMBER:

Cartridges for weapons, inert projectile, UN0012

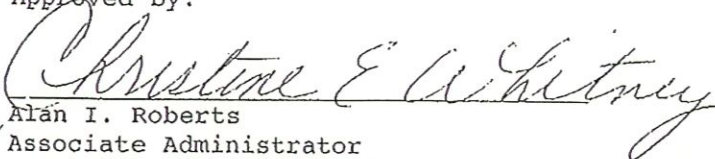
U.N. CLASSIFICATION CODE: 1.4S

<u>REFERENCE NUMBER</u>	<u>PRODUCT DESIGNATION/PART NUMBER</u>
EX-9711092	PAK2500 (Model Number: #2550, #2552, #2554, #2560, #2570, #2580)

Coonrod, Combined Tactical Systems, Inc.

Cartridges for weapons, inert projectile, UN0012 (continued)

Approved by:

*for*   
Alan I. Roberts  
Associate Administrator  
for Hazardous Materials Safety

DEC - 2 1997

\_\_\_\_\_  
(DATE)

# Model 4230D, Grenade, CS

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations  
Date of Issue: 06/12/2023

Version: 1.0

### SECTION 1: IDENTIFICATION

#### 1.1. Product Identifier

Product Form: Mixture

Product Name: Model 4230D, Grenade, CS

Product Code: 4230D

#### 1.2. Intended Use of the Product

Use of the Substance/Mixture: Explosive product

#### 1.3. Name, Address, and Telephone of the Responsible Party

Company

Combined Systems, Inc.

388 Kinsman Rd.

Jamestown, PA16134

Phone: (724) 932-2177

#### 1.4. Emergency Telephone Number

Emergency Number : VelocityEHS  
(800)255-3924 (North America)  
+1 (813)248-0585 (International)

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1. Classification of the Substance or Mixture

##### GHS-US Classification

Explosive Category 1.4	H204
Acute toxicity (oral) Category 4	H302
Acute toxicity (inhalation:dust,mist) Category 2	H330
Skin corrosion/irritation Category 2	H315
Serious eye damage/eye irritation Category 2	H319
Respiratory sensitization, Category 1	H334
Skin sensitization, Category 1	H317
Hazardous to the aquatic environment - Acute Hazard Category 2	H401
Hazardous to the aquatic environment - Chronic Hazard Category 3	H412

#### 2.2. Label Elements

##### GHS-US Labeling

##### Hazard Pictograms (GHS-US)



##### Signal Word (GHS-US)

: Danger

##### Hazard Statements (GHS-US)

: H204 - Fire or projection hazard.  
H302 - Harmful if swallowed.  
H315 - Causes skin irritation.  
H317 - May cause an allergic skin reaction.  
H319 - Causes serious eye irritation.  
H330 - Fatal if inhaled.  
H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled.  
H401 - Toxic to aquatic life.  
H412 - Harmful to aquatic life with long lasting effects.

##### Precautionary Statements (GHS-US)

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P250 - Do not subject to grinding/shock/friction.  
P260 - Do not breathe dust, fume.  
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P272 - Contaminated work clothing must not be allowed out of the workplace.  
P273 - Avoid release to the environment.



# Model 4230D, Grenade, CS

## Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P280 - Wear protective gloves, protective clothing, and eye protection.  
P284 - In case of inadequate ventilation wear respiratory protection.  
P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell.  
P302+P352 - If on skin: Wash with plenty of water.  
P304+P340 - If inhaled: Remove person to fresh air and keep at rest in a position comfortable for breathing.  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 - Immediately call a poison center or doctor.  
P320 - Specific treatment is urgent (see section 4 on this SDS).  
P330 - Rinse mouth.  
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P342+P311 - If experiencing respiratory symptoms: Call a poison center or doctor.  
P362+P364 - Take off contaminated clothing and wash it before reuse.  
P370+P380 - In case of fire: Evacuate area.  
P372 - Explosion risk in case of fire.  
P373 - DO NOT fight fire when fire reaches explosives.  
P374 - Fight fire with normal precautions from a reasonable distance.  
P401 - Store in accordance with as defined in the Explosives Act of Canada and the provisions of the Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR part 555.  
P403 - Store in a well-ventilated place.  
P405 - Store locked up.  
P501 - Dispose of contents/container in accordance with as defined in the Explosives Act of Canada and the provisions of the Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR part 555.

### 2.3. Other Hazards

Energetic effects (blast effects, heat, noise, and shrapnel) from functioning of the product can cause serious physical injuries.

### 2.4. Unknown Acute Toxicity (GHS-US)

No data available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Synonyms	Product Identifier	%	GHS US classification
o-Chlorobenzylidene malononitrile	[(2-Chlorophenyl)methylene]malononitrile / Malononitrile, o-chlorobenzylidene- / Propanedinitrile, [(2-chlorophenyl)methylene]- / (o-Chlorobenzylidene) malononitrile / 2-Chlorobenzylidenemalononitrile / Propanedinitrile, 2-[(2-chlorophenyl)methylene]- / CS / o-Chlorobenzal-malononitrile / ortho-Chlorobenzylidene malononitrile / [(2-Chlorophenyl)methylene] propanedinitrile / 2-Chlorobenzal-malononitrile / ortho-Chlorobenzylidenemalononitrile / o-chlorobenzylidene-malononitrile / o-Chlorobenzylidenemalononitrile	(CAS-No.) 2698-41-1	10 – 30	Acute Tox. 3 (Oral), H301 Acute Tox. 1 (Inhalation), H330 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 STOT SE 3, H335 Comb. Dust
Nitrocellulose	NITROCELLULOSE / COLLODION / Nitrocellulose, mixture, without pigment / Guncotton / Collodion / Cellulose, nitrate / Cellulose nitrate / Pyroxylin	(CAS-No.) 9004-70-0	10 – 30	Expl. 1.1, H201
Potassium chlorate	potassium chlorate / POTASSIUM CHLORATE / Chloric acid, potassium salt (1:1) / Chloric acid, potassium salt / Berthollet's salt / Berthollet salt	(CAS-No.) 3811-04-9	10 – 30	Ox. Sol. 1, H271 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Silicon	Silicon powder / Silicon powder, amorphous / SILICON / silicon	(CAS-No.) 7440-21-3	10 – 30	Flam. Sol. 2, H228 Comb. Dust

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Sucrose	.beta.-D-Fructofuranosyl .alpha.-D-glucopyranoside / D-(+)-Saccharose / Sacarose / sucrose / Sugar distillate / D-(+)-Sucrose / SUCROSE / Sugar / Saccharose / .alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl	(CAS-No.) 57-50-1	10 – 30	Comb. Dust
Potassium nitrate	Nitric acid potassium salt / Nitric acid, potassium salt / Nitric acid potassium salt (1:1) / POTASSIUM NITRATE / potassium nitrate	(CAS-No.) 7757-79-1	5 – 15	Ox. Sol. 3, H272
Magnesium carbonates	Magnesium carbonate / Carbonic acid, magnesium salt (1:?) / Carbonic acid, magnesium salt	(CAS-No.) 7757-69-9	5 – 15	Not classified
Sulfur	Sulphur / Sulphur, molten / Elemental sulfur / Brimstone / SULFUR / Elemental sulphur / Sulfur, elemental / sulfur	(CAS-No.) 7704-34-9	1 – 5	Skin Irrit. 2, H315 Aquatic Acute 3, H402 Aquatic Chronic 3, H412 Comb. Dust
Charcoal	Charcoal (An amorphous form of carbon produced by partially burning or oxidizing wood or other organic matter.)	(CAS-No.) 16291-96-6	1 – 5	Self-heat. 2, H252 Acute Tox. 4 (Inhalation:dust,mist), H332 Comb. Dust
Titanium	Titanium powder, dry / Titanium powder / Titanium powder, wetted / Titanium sponge powders / titanium	(CAS-No.) 7440-32-6	1 – 5	Flam. Sol. 1, H228 Comb. Dust
Copper	Copper, metallic / Pigment Metal 2 / Copper metal / CI 77400 / Copper, elemental / C.I. Pigment Metal 2 / C.I. 77400 / Granulated copper / copper	(CAS-No.) 7440-50-8	0.1 – 1	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Comb. Dust
Potassium perchlorate	Perchloric acid, potassium salt / Perchloric acid, potassium salt (1:1) / potassium perchlorate	(CAS-No.) 7778-74-7	0.1 – 1	Ox. Sol. 1, H271 Acute Tox. 4 (Oral), H302 Eye Irrit. 2A, H319 STOT SE 3, H335 STOT RE 2, H373
Zinc	C.I. Pigment Black 16 / C.I. Pigment Metal 6 / Zinc (metallic) / Pigment Black 16 / Zinc powder - zinc dust (stabilised) / Zinc powder - zinc dust (pyrophoric) / ZINC / zinc	(CAS-No.) 7440-66-6	0.1 – 1	Pyr. Sol. 1, H250 Water-react. 1, H260 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Comb. Dust
Boron	boron	(CAS-No.) 7440-42-8	0.1 – 1	Comb. Dust
1,3-Benzenediol, 2,4,6-trinitro-, lead salt	1,3-Benzenediol, 2,4,6-trinitro-, lead(2+) salt (1:1) / Lead 2,4,6-trinitro-m-phenylene dioxide / Lead 2,4,6-trinitroresorcinoxide / Lead styphnate / Lead trinitroresorcinate / Tricinate / 2,4,6-Trinitro-1,3-phenylenedioxylead(II) / Lead 2,4,6-Trinitroresorcinoxide / Lead styphnate, wetted / Normal lead styphnate / Propylene / Lead(II) 2,4,6-trinitrobenzene-1,3-diolate	(CAS-No.) 15245-44-0	< 0.1	Unst. Expl., H200 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Carc. 1B, H350 Repr. 1A, H360 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

\* The actual concentration of ingredient(s) is withheld as a trade secret in accordance with the 29 CFR 1910.1200. Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%). Full text of H-phrases: see section 16.

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of First-aid Measures

**First-aid Measures General:** Information is only applicable to product contents, and not to product as normally supplied. This information is applicable to damaged, leaking, or spilled product as contact with contents is possible under these conditions.

**First-aid Measures After Inhalation:** First, take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate respiratory protective equipment, use the buddy system), then remove the exposed person to fresh air. Keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Seek medical attention.

**First-aid Measures After Skin Contact:** Remove contaminated clothing. After rinsing with water, then wash with plenty of soap and water. Obtain medical attention if irritation/rash develops or persists.



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**First-aid Measures After Eye Contact:** Immediately rinse with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

**First-aid Measures After Ingestion:** Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

### 4.2. Most Important Symptoms and Effects Both Acute and Delayed

**Symptoms/Injuries:** Energetic effects (blast effects, heat, noise, and shrapnel) from functioning of the product can cause serious physical injuries. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Skin sensitization. Causes skin irritation. Causes serious eye irritation. Harmful if swallowed. Fatal if inhaled.

**Symptoms/Injuries After Inhalation:** Irritation of the respiratory tract and the other mucous membranes. Exposure may produce cough, mucous secretions, shortness of breath, chest tightness or other symptoms indicative of an allergic/sensitization reaction. Inhalation of this material can cause serious health effects in small amounts, leading to unconsciousness and death.

**Symptoms/Injuries After Skin Contact:** May cause an allergic skin reaction. Redness, pain, swelling, itching, burning, dryness, and dermatitis.

**Symptoms/Injuries After Eye Contact:** Contact causes severe irritation with redness and swelling of the conjunctiva.

**Symptoms/Injuries After Ingestion:** This material is harmful orally and can cause adverse health effects or death in significant amounts.

**Chronic Symptoms:** May cause sensitization by inhalation and skin contact. Prolonged exposure, especially in an enclosed area, may lead to long-term effects such as eye problems including scarring, glaucoma, and cataracts, and may possibly cause breathing problems such as asthma.

### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

## SECTION 5: FIRE-FIGHTING MEASURES

### 5.1. Extinguishing Media

**Suitable Extinguishing Media:** DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate.

**Unsuitable Extinguishing Media:** DO NOT fight fires involving explosives.

### 5.2. Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Explosive, could cause fire and secondary explosions.

**Explosion Hazard:** Explosives, Division 1.4 - Explosives (with no significant blast hazard).

**Reactivity:** Fire or projection hazard.

### 5.3. Advice for Firefighters

**Precautionary Measures Fire:** This product is an explosive with a fire or projection hazard. DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS.

**Firefighting Instructions:** In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. DO NOT ATTEMPT TO FIGHT FIRE. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. Thermal decomposition can lead to release of irritating gases and vapors.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

**Hazardous Combustion Products:** Carbon oxides (CO, CO<sub>2</sub>). Chlorine compounds. Metal oxides. Nitrogen oxides.

**Other Information:** Do not allow run-off from fire fighting to enter drains or water courses.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Keep away from heat, sparks, open flames, hot surfaces. – No smoking. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Evacuate danger area. Do not handle until all safety precautions have been read and understood.

#### 6.1.1. For Non-Emergency Personnel

**Protective Equipment:** Non-emergency personnel should evacuate the area of the spill and only enter after emergency personnel have declared the area safe to enter.

**Emergency Procedures:** Evacuate unnecessary personnel. Evacuate danger area.

#### 6.1.2. For Emergency Personnel

**Protective Equipment:** Equip cleanup crew with proper protection.

**Emergency Procedures:** Ventilate area. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Eliminate ignition sources.

### 6.2. Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment.



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### 6.3. Methods and Materials for Containment and Cleaning Up

**For Containment:** Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. Absorb and contain with inert material. Place contents in suitable container for disposal. As an immediate precautionary measure, isolate spill or leak area in all directions. Ventilate area.

**Methods for Cleaning Up:** Clean up spills immediately and dispose of waste safely. Use only non-sparking tools. Be careful to avoid shock, friction, and contact with grit. Collect product for recovery or disposal. Recover the product by vacuuming, shoveling or sweeping. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

### 6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for Safe Handling

**Additional Hazards When Processed:** This product is an explosive and should only be used under the supervision of trained and licensed personnel. Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

**Precautions for Safe Handling:** Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Keep away from sources of ignition - No smoking. Handle empty containers with care because they may still present a hazard. Use only outdoors or in a well-ventilated area.

**Hygiene Measures:** This product is an explosive and should only be used under the supervision of trained and licensed personnel. Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures:** Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.

**Storage Conditions:** Store under moderate temperatures recommended by competent authority. Store under dry conditions in a well ventilated magazine that has been approved for either detonator storage or explosive storage. Do NOT store explosives in a detonator magazine or detonators in an explosive magazine. Keep away from heat, spark and flames. Keep containers closed. Explosives should be kept well away from initiating explosives; protected from physical damage; separated from oxidizing materials, combustibles, and sources of heat. Isolate from incompatibles. Store locked up/in a secure area.

**Incompatible Materials:** Strong acids, strong bases, strong oxidizers.

**Special Rules on Packaging:** Keep only in the original container.

### 7.3. Specific End Use(s)

Explosive product

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

Copper (7440-50-8)		
USA ACGIH	ACGIH OEL TWA	0.2 mg/m <sup>3</sup> (fume)
USA NIOSH	NIOSH REL (TWA)	1 mg/m <sup>3</sup> (dust and mist)
		0.1 mg/m <sup>3</sup> (fume)
USA IDLH	IDLH	100 mg/m <sup>3</sup> (dust, fume and mist)
USA OSHA	OSHA PEL (TWA) [1]	0.1 mg/m <sup>3</sup> (fume)
		1 mg/m <sup>3</sup> (dust and mist)
Sucrose (57-50-1)		
USA ACGIH	ACGIH OEL TWA	10 mg/m <sup>3</sup>
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA NIOSH	NIOSH REL (TWA)	10 mg/m <sup>3</sup> (total dust)
		5 mg/m <sup>3</sup> (respirable dust)
USA OSHA	OSHA PEL (TWA) [1]	15 mg/m <sup>3</sup> (total dust)
		5 mg/m <sup>3</sup> (respirable fraction)
o-Chlorobenzylidene malononitrile (2698-41-1)		
USA ACGIH	ACGIH OEL Ceiling [ppm]	0.05 ppm (inhalable fraction and vapor)
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen, Skin - potential significant contribution to overall exposure by the cutaneous route



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USA NIOSH	NIOSH REL (Ceiling)	0.4 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL C [ppm]	0.05 ppm
USA IDLH	IDLH	2 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) [1]	0.4 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) [2]	0.05 ppm
<b>Silicon (7440-21-3)</b>		
USA NIOSH	NIOSH REL (TWA)	10 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable dust)
USA OSHA	OSHA PEL (TWA) [1]	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)

### 8.2. Exposure Controls

#### Appropriate Engineering Controls

: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Proper grounding procedures to avoid static electricity should be followed. Product to be handled in a closed system and under strictly controlled conditions. Use explosion-proof equipment. Gas detectors should be used when toxic gases may be released.

#### Personal Protective Equipment

: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



#### Materials for Protective Clothing

: Chemically resistant materials and fabrics. Wear fire/flammable resistant/retardant clothing.

#### Hand Protection

: Wear protective gloves.

#### Eye and Face Protection

: Chemical goggles, safety glasses, or face shield.

#### Skin and Body Protection

: Wear suitable protective clothing.

#### Respiratory Protection

: Suitable respiratory protective device recommended. Wear positive pressure NIOSH or European EN149 vapor respirators when deploying product in large quantities. If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

#### Other Information

: When using, do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: No data available
Odor	: No data available
Odor Threshold	: No data available
pH	: No data available
Evaporation Rate	: No data available
Melting Point	: No data available
Freezing Point	: No data available
Boiling Point	: No data available
Flash Point	: No data available
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor Pressure	: No data available
Relative Vapor Density at 20°C	: No data available
Relative Density	: No data available
Solubility	: No data available
Partition Coefficient: N-Octanol/Water	: No data available
Viscosity	: No data available



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### Explosive Properties

: Explosives, Division 1.4 - Explosives (with no significant blast hazard).

### 9.2. Other Information

No additional information available

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

Fire or projection hazard.

### 10.2. Chemical Stability

Extreme risk of explosion by shock, friction, fire or other sources of ignition.

### 10.3. Possibility of Hazardous Reactions

Hazardous polymerization will not occur.

### 10.4. Conditions to Avoid

Keep away from open flames, hot surfaces and sources of ignition. Incompatible materials.

### 10.5. Incompatible Materials

Strong acids, strong bases, strong oxidizers.

### 10.6. Hazardous Decomposition Products

Thermal decomposition may produce: Carbon oxides (CO, CO<sub>2</sub>), Chlorine compounds, Metal oxides, Nitrogen oxides.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on Toxicological Effects

Acute Toxicity (Oral): Harmful if swallowed.

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Fatal if inhaled.

Copper (7440-50-8)	
LC50 Inhalation Rat	> 5.11 mg/l/4h
1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)	
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5.05 mg/l/4h
ATE (Oral)	500.00 mg/kg body weight
ATE (Dust/Mist)	1.50 mg/l/4h
Potassium chlorate (3811-04-9)	
LD50 Oral Rat	1870 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5.1 mg/l/4h
ATE (Dust/Mist)	1.50 mg/l/4h
Boron (7440-42-8)	
LD50 Oral Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5.08 mg/l/4h
LC50 Inhalation Rat	> 5.08 mg/l/4h
Polyvinyl alcohol (9002-89-5)	
LD50 Oral Rat	> 20 g/kg
Potassium perchlorate (7778-74-7)	
ATE (Oral)	500.00 mg/kg body weight
Potassium nitrate (7757-79-1)	
LD50 Oral Rat	> 2000 mg/kg
LD50 Dermal Rat	> 5000 mg/kg
LC50 Inhalation Rat	> 0.527 mg/l/4h (No deaths)
Sulfur (7704-34-9)	
LD50 Oral Rat	> 3000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg
LC50 Inhalation Rat	> 9.23 mg/l/4h
Charcoal (16291-96-6)	
LC50 Inhalation Rat	> 4.97 mg/l/4h
ATE (Dust/Mist)	1.50 mg/l/4h
Sucrose (57-50-1)	

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LD50 Oral Rat	29700 mg/kg
Nitrocellulose (9004-70-0)	
LD50 Oral Rat	5000 mg/kg
o-Chlorobenzylidene malononitrile (2698-41-1)	
LD50 Oral Rat	178 mg/kg
ATE (Oral)	100.00 mg/kg body weight
ATE (Gases)	10.00 ppmV/4h
ATE (Vapors)	0.05 mg/l/4h
ATE (Dust/Mist)	0.01 mg/l/4h
Silicon (7440-21-3)	
LD50 Oral Rat	3160 mg/kg

**Skin Corrosion/Irritation:** Causes skin irritation.

**Serious Eye Damage/Irritation:** Causes serious eye irritation.

**Respiratory or Skin Sensitization:** May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

**Germ Cell Mutagenicity:** Not classified

**Carcinogenicity:** Not classified

1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** Not classified

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** Irritation of the respiratory tract and the other mucous membranes. Exposure may produce cough, mucous secretions, shortness of breath, chest tightness or other symptoms indicative of an allergic/sensitization reaction. Inhalation of this material can cause serious health effects in small amounts, leading to unconsciousness and death.

**Symptoms/Injuries After Skin Contact:** May cause an allergic skin reaction. Redness, pain, swelling, itching, burning, dryness, and dermatitis.

**Symptoms/Injuries After Eye Contact:** Contact causes severe irritation with redness and swelling of the conjunctiva.

**Symptoms/Injuries After Ingestion:** This material is harmful orally and can cause adverse health effects or death in significant amounts.

**Chronic Symptoms:** May cause sensitization by inhalation and skin contact. Prolonged exposure, especially in an enclosed area, may lead to long-term effects such as eye problems including scarring, glaucoma, and cataracts, and may possibly cause breathing problems such as asthma.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

**Ecology - General** : Toxic to aquatic life.

Copper (7440-50-8)	
LC50 Fish 1	0.0068 – 0.0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 - Crustacea [1]	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Other Aquatic Organisms 1	0.0426 (0.0426 – 0.0535) mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])
LC50 Fish 2	< 0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Other Aquatic Organisms 2	0.031 (0.031 – 0.054) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])

Zinc (7440-66-6)	
LC50 Fish 1	2.16 – 3.05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 - Crustacea [1]	0.139 – 0.908 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 Fish 2	0.211 – 0.269 mg/l (Exposure time: 96 h - Species: Pimephales promelas [semi-static])
ErC50 (Algae)	0.15 mg/l

1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)	
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EC50 - Crustacea [1]	7 mg/l
Potassium chlorate (3811-04-9)	
LC50 Fish 1	13500 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 - Crustacea [1]	879.7 mg/l
LC50 Fish 2	1750 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
ErC50 (Algae)	2.8 mg/l
NOEC Chronic Algae	1.5 mg/l
Potassium perchlorate (7778-74-7)	
EC50 - Crustacea [1]	1310 mg/l
Potassium nitrate (7757-79-1)	
EC50 - Crustacea [1]	490 mg/l
Sulfur (7704-34-9)	
LC50 Fish 1	866 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
EC50 - Crustacea [1]	736 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 Fish 2	14 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
Nitrocellulose (9004-70-0)	
ErC50 (Algae)	579 mg/l

### 12.2. Persistence and Degradability

Model 4230D, Grenade, CS	
Persistence and Degradability	Not established.
Copper (7440-50-8)	
Persistence and Degradability	Not readily biodegradable.

### 12.3. Bioaccumulative Potential

Model 4230D, Grenade, CS	
Bioaccumulative Potential	Bioaccumulation of metals cannot be excluded.
1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)	
Partition coefficient n-octanol/water (Log Pow)	-2.19 (at 20 °C)
Charcoal (16291-96-6)	
Partition coefficient n-octanol/water (Log Pow)	(0.3 - <=3.48 - at 25 °C (at pH 6.97)

### 12.4. Mobility in Soil

Model 4230D, Grenade, CS	
Ecology - Soil	No data available.

### 12.5. Other Adverse Effects

Other Adverse Effects	: None known.
Other Information	: Avoid release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste Treatment Methods

**Waste Treatment Methods:** Explosives should be destroyed by open burning or by burning in an approved incinerator. Explosives should not be burned in containers.

**Sewage Disposal Recommendations:** Do not dispose of waste into sewer. Do not empty into drains.

**Waste Disposal Recommendations:** Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

**Ecology - Waste Materials:** Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

## SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

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### 14.1. In Accordance with DOT

EX # 9711093

Proper Shipping Name : AMMUNITION, SMOKE (CS GRENADES)  
Hazard Class : 1.4G  
Identification Number : UN0303  
Label Codes : 1.4G



### 14.2. In Accordance with IMDG

Proper Shipping Name : AMMUNITION, SMOKE (CS GRENADES)  
Hazard Class : 1  
Division : 1.4  
Compatibility Group : G  
Subsidiary Risk(s) : SP204, 6.1, 8  
Identification Number : UN0303  
Packing Group : II  
Label Codes : 1.4G  
EmS-No. (Fire) : F-B  
EmS-No. (Spillage) : S-X



### 14.3. In Accordance with IATA

Proper Shipping Name : AMMUNITION, SMOKE (CS GRENADES)  
Packing Group : II  
Identification Number : UN0303  
Hazard Class : 1  
Label Codes : 1.4G  
Division : 1.4  
Compatibility Group : G  
Subsidiary Risk(s) : None  
ERG Code (IATA) : 1L



## SECTION 15: REGULATORY INFORMATION

### 15.1. US Federal Regulations

Model 4230D, Grenade, CS	
SARA Section 311/312 Hazard Classes	Physical hazard - Explosive Health hazard - Specific target organ toxicity (single or repeated exposure) Health hazard - Respiratory or skin sensitization Health hazard - Skin corrosion or Irritation Health hazard - Serious eye damage or eye irritation Health hazard - Acute toxicity (any route of exposure)
Copper (7440-50-8)	
Listed on the United States TSCA (Toxic Substances Control Act) Inventory - Status: Active	
Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	5000 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
SARA Section 313 - Emission Reporting	1 %
Zinc (7440-66-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	454 kg no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
SARA Section 313 - Emission Reporting	1 % (dust or fume only)
1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	



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<b>Potassium chlorate (3811-04-9)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Boron (7440-42-8)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Titanium (7440-32-6)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Potassium perchlorate (7778-74-7)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Potassium nitrate (7757-79-1)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Sulfur (7704-34-9)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Charcoal (16291-96-6)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Sucrose (57-50-1)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Magnesium carbonates (7757-69-9)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Nitrocellulose (9004-70-0)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>EPA TSCA Regulatory Flag</b>	XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).
<b>o-Chlorobenzylidene malononitrile (2698-41-1)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
<b>Silicon (7440-21-3)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	

## 15.2. US State Regulations

<b>Copper (7440-50-8)</b>	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	
U.S. - Massachusetts - Right To Know List	
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List	
<b>Zinc (7440-66-6)</b>	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	
U.S. - Massachusetts - Right To Know List	
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List	
<b>1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)</b>	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Massachusetts - Right To Know List	
<b>Potassium chlorate (3811-04-9)</b>	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	
U.S. - Massachusetts - Right To Know List	
<b>Boron (7440-42-8)</b>	
U.S. - New Jersey - Right to Know Hazardous Substance List	
<b>Titanium (7440-32-6)</b>	
U.S. - New Jersey - Right to Know Hazardous Substance List	
<b>Potassium perchlorate (7778-74-7)</b>	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	
U.S. - Massachusetts - Right To Know List	



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### Potassium nitrate (7757-79-1)

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### Sulfur (7704-34-9)

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### Sucrose (57-50-1)

U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### Nitrocellulose (9004-70-0)

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### o-Chlorobenzylidene malononitrile (2698-41-1)

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### Silicon (7440-21-3)

U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Massachusetts - Right To Know List

### California Proposition 65



**WARNING:** This product can expose you to 1,3-Benzenediol, 2,4,6-trinitro-, lead salt, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Chemical Name (CAS No.)	Carcinogenicity	Developmental Toxicity	Female Reproductive Toxicity	Male Reproductive Toxicity
1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)	X			

## SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision

: 06/12/2023

Other Information

: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

### GHS Full Text Phrases:

H200	Unstable explosive
H201	Explosive; mass explosion hazard
H204	Fire or projection hazard
H228	Flammable solid
H250	Catches fire spontaneously if exposed to air
H252	Self-heating in large quantities; may catch fire
H260	In contact with water releases flammable gases which may ignite spontaneously
H261	In contact with water releases flammable gas
H271	May cause fire or explosion; strong oxidizer
H272	May intensify fire; oxidizer
H301	Toxic if swallowed
H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H330	Fatal if inhaled
H332	Harmful if inhaled

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H334	May cause an allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H350	May cause cancer
H360	May damage fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

SDS US (GHS HazCom)