福建沃尔法化学科技有限公司
Fujian Wolfa Chemical Technology Co., Ltd

DESIGN REPORT OF SAFETY DATA SHEET

Revision Date: August 18, 2025

Name of the sample	(3,3-DIMETHYL-1-BUTYNE)DICOBALT HEXACARBONYL
Applicant	Fujian Wolfa Chemical Technology Co., Ltd.
Supplier	Fujian Wolfa Chemical Technology Co., Ltd.
Composition of the sample	(3,3-DIMETHYL-1-BUTYNE)DICOBALT HEXACARBONYL: ≥99%
Warranty of Design	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Eleventh revised edition
Design Result of SDS please see next page.	

Notes:This SDS is valid before the implementation of the Twelfth revised edition GHS.

Section 1 Product and Company Identification

> Product Identifier

Product Name	(3,3-DIMETHYL-1-BUTYNE)DICOBALT HEXACARBONYL
Synonyms	——
CAS No.	56792-69-9
EC No.	——
Molecular Formula	$C_{12}H_{10}Co_2O_6$

> Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Relevant Identified Uses	Please consult manufacturer.
Uses Advised Against	Please consult manufacturer.

> Details of the Supplier of the Safety Data Sheet

Applicant Name	Fujian Wolfa Chemical Technology Co., Ltd.
Application Address	Room 2620, Building 18, Xingguang Plaza, No.970 Anji South Road, Fengze District, Quanzhou City, Fujian Province
Applicant Post Code	362000
Applicant Telephone	+86-17854166533
Applicant Fax	——
Applicant E-mail	——
Supplier Name	Fujian Wolfa Chemical Technology Co., Ltd.
Supplier Address	Room 2620, Building 18, Xingguang Plaza, No.970 Anji South Road, Fengze District, Quanzhou City, Fujian Province
Supplier Post Code	362000
Supplier Telephone	+86-17854166533
Supplier Fax	——
Supplier E-mail	——

> Emergency Phone Number

Emergency Phone Number	+86-17854166533

Section 2 Hazards Identification

Hazard class and label elements of the product according to GHS (the Eleventh revised edition):

> GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable Liquids	Category 2
Acute toxicity -oral	Category 1

Acute toxicity - dermal	Category 3
Acute toxicity - inhalation	Category 3
Skin sensitisation	Category 1
Respiratory sensitization	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2
Hazardous to the aquatic environment-Chronic hazard	Category 3

> GHS Label Elements

Pictogram



Signal Word Danger

> Hazard Statements

H225	Highly flammable liquid and vapour.
H300	Fatal if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H412	Harmful to aquatic organisms and has long-term effects.

> Precautionary Statements

Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/…/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P262	Do not get in eyes, on skin, or on clothing.

P264	Wash hands 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 should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	Wear respiratory protection.
Response	
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.Rinse mouth.
P302+P352	IF ON SKIN: wash with plenty of soap and water.
P303+ P361 + P353	IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.
P304 + P340 + P311	IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.Call a POISON CENTER or doctor/physician.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P333 + P313	IF SKIN irritation or rash occurs: Get medical advice/attention.
P342 + P311	IF experiencing respiratory symptoms: call a POISON CENTER or doctor/physician.
P361 + P364	Remove/Take off immediately all contaminated clothing.Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry powder or alcohol-resistant foam to extinguish the fire.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes.
P337+P313	IF eye irritation persists: Get medical advice/attention.
Storage	
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
Disposal	
P501	Dispose of contents/container to an approved waste disposal plant.

Section 3 Composition/Information on Ingredients

Component	CAS No.	EC No.	Concentration (weight percent, %)
(3,3-DIMETHYL-1-BUTYNE)DICOBALT HEXACARBONYL	56792-69-9	——	≥99%

Section 4 First Aid Measures

> Description of First Aid Measures

General Advice	Ensure self-protection. Present this safety data sheet to the physician on site.
Following Eye Contact	Rinse immediately with plenty of water. Consult an ophthalmologist. Remove any contact lenses.
Following Skin Contact	Take off immediately all contaminated clothing. Wash skin with water/shower. Call a doctor immediately.
If Swallowed	Have the victim drink water (up to 2 glasses). Seek immediate medical advice. If medical care is not available within one hour, induce vomiting only in exceptional cases (and only if the person is conscious). Administer activated charcoal (prepared as a 10% slurry from 20-40 grams) and seek medical attention without delay.
If Inhalation	After inhalation:Move the affected person to fresh air. Seek immediate medical attention. If breathing has stopped:Begin artificial respiration immediately and administer oxygen if necessary.

> Most Important Symptoms and Effects, both Acute and Delayed

The most important known symptoms and effects are described in the hazard statements (Section 2) and in Section 11.

> Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available

Section 5 Fire Fighting Measures

> Extinguishing Media

Suitable extinguishing media: Foam, carbon dioxide, dry powder.

For safety reasons unsuitable extinguishing agents: Do not use a solid water stream for extinction, as it may cause splattering of flammable liquid and spread the fire.

> Specific Hazards Arising from the chemical

1. Carbon oxides
2. Cobalt/Cobalt oxide
3. Flammable
4. Vapour is heavier than air and may spread along the ground.
5. Forms an explosive mixture with air at elevated temperatures.
6. May liberate hazardous gases or vapours in a fire.

> Special protective actions for fire-fighters

1. Firefighters must wear self-contained breathing apparatus and full protective clothing. Fight the fire from upwind.
2. If possible, move the container from the fire area to an open space and cool it with water.
3. Immediately evacuate the area if a container in the fire zone shows discoloration or noises from its safety relief device.
4. Isolate the incident scene and prevent entry by unauthorized personnel.
5. Contain and treat firefighting water runoff to prevent environmental contamination.

Section 6 Accidental Release Measure

> Personal Precautions, Protective Equipment and Emergency Procedures

1. It is recommended that emergency responders wear self-contained breathing apparatus, anti-static clothing, and oil-resistant rubber gloves.
2. Advice for non-emergency personnel: Do not inhale vapour or aerosols.
3. Avoid contact with or walking over the spilled material.
4. All equipment used during operations must be grounded. Ensure adequate ventilation. Keep away from heat and ignition sources.
5. Stop the leak if possible without risk. Eliminate all ignition sources.
   Based on the impact area of liquid flow, vapour, or dust dispersion, cordon off the area. Evacuate non-essential personnel upwind and crosswind to a safe zone.

> Environmental Precautions

Prevent the spilled material from entering sewers. Risk of explosion.

> Methods and Materials for Containment and Cleaning Up

Small spill	Collect the leaking liquid in a sealable container as far as possible. Absorb with sand, activated carbon or other inert material and transfer to a safe place. Do not flush into sewers.
Large spill	Construct dikes or dig pits to contain the spill. Block drainage pipes. Cover with foam to suppress evaporation. Transfer using explosion-proof pumps to tank trucks or dedicated collectors for recovery or disposal at a waste treatment facility.

Section 7 Handling and Storage

> Precautions for Handling

1. Personnel must be specially trained and strictly adhere to operating procedures.
2. Handle in areas with local or general ventilation equipment.
3. Avoid contact with eyes and skin. Do not inhale vapors.
4. Keep away from ignition sources and heat. No smoking in the workplace.
5. Use explosion-proof ventilation systems and equipment.
6. During transfer, control flow rate and ensure grounding to prevent static electricity accumulation.
7. Avoid contact with incompatible materials such as oxidizers (see Section 10).
8. Handle with care during loading/unloading to prevent container damage.
9. Empty containers may retain hazardous residues.
10. Wash hands after use. Do not eat, drink, or smoke in the work area.
11. Ensure appropriate types and quantities of firefighting and spill control equipment are available.

> Conditions for safe storage, including any incompatibilities

1. Store in a cool, well-ventilated warehouse.
2. Keep separately from oxidizers and food-grade chemicals. Avoid mixed storage.

3 Keep containers tightly sealed.

4 Keep away from fire, heat and ignition sources.

5 The storage area must be equipped with lightning protection equipment.

6 The ventilation system should include grounding to remove static electricity.

7 Use explosion-proof lighting and ventilation facilities.

8 Do not use equipment or tools that can generate sparks.

9 The storage area should be equipped with leak emergency treatment equipment and appropriate containment materials.

Section 8 Exposure Controls/Personal Protection

> Control Parameters

Occupational Exposure Limit Values

No data available

> Monitoring Methods

1 EN 14042: Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

2 GBZ/T 160.1~GBZ/T 160.81-2004: Determination of toxic substances in workplace air (Series of effective standards).

> Engineering Controls

1 It is recommended to separate the work area from other operational areas.

2 Operate in a closed system to prevent leaks.

3 Ensure adequate ventilation.

4 Establish emergency evacuation routes and necessary hazard mitigation zones.

5 Install automatic alarm devices and accident ventilation facilities.

6 Mark red zoning lines, warning signs and caution notices in Chinese, and install a communication and alarm system.

7 Provide safety showers and eye-wash equipment.

> Personal Protection Equipment

Eye protection	Wear chemical safety goggles (compliant with EU EN 166 or US NIOSH standards).
Hand protection	Wear oil-resistant rubber gloves.
Respiratory Protection	Use a filtering respirator (half mask) when vapor/mist is generated. Wear a self-contained breathing apparatus during emergency rescue or evacuation.
Skin and Body Protection	Wear chemical-resistant clothing to prevent permeation.

Section 9 Physical and Chemical Properties

Appearance: Deep red liquid

Odor: No information available

Odor Threshold: No information available

pH: No information available

Melting Point/Freezing Point (℃): No

Initial Boiling Point and Boiling Range (℃): No information

information available	available
Flash Point (℃): 23 ℃	**Evaporation Rate:** No information available
Flammability: No information available	**Upper/lower explosive limits[%(v/v)]:** Upper limit: No information available; Lower limit: No information available
Vapor Pressure (KPa): No information available	**Relative Vapour Density(Air=1):** No information available
Relative Density(Water=1): No information available	**Solubility**: No information available
n-Octanol/Water Partition Coefficient: No information available	**Auto-Ignition Temperature(℃):** No information available
Decomposition Temperature (℃): No information available	**Kinematic Viscosity (mm^2/s):** No information available
Particle characteristics: No information available	**Critical Temperature(℃):** No information available

Section 10 Stability and Reactivity

Reactivity	No data available.
Chemical Stability	This product is chemically stable under standard ambient conditions (room temperature).
Possibility of Hazardous Reactions	No data available.
Conditions to Avoid	Static electricity, heat, moisture, etc.
Incompatible Materials	No data available.
Hazardous Decomposition Products	No data available.

Section 11 Toxicological Information

> Acute Toxicity

Fatal if swallowed.

Toxic if inhaled.

Toxic in contact with skin.

> Skin Corrosion/Irritation

No information available

> Serious Eye Damage/Irritation

No information available

> Skin Sensitization

May cause an allergic skin reaction.

> Respiratory sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

> Germ cell mutagenicity

Suspected of causing genetic defects.

> Carcinogenicity

Suspected of causing cancer.

> Reproductive toxicity

No information available

> Specific target organ toxicity - single exposure

No information available

> Specific target organ toxicity - repeated exposure

No information available

> Inhalation hazard

No information available

> Additional information

Carbony compounds can become toxic as they may generate carbon monoxide upon decomposition.

Section 12 Ecological Information

> Acute aquatic toxicity

No information available

> Chronic aquatic toxicity

Harmful to aquatic life with long lasting effects.

> Others

Persistence and Degradability	No information available.
Bioaccumulation or Bioaccumulation Potential	No information available.
Mobility in Soil	No information available.
PBT and vPvB Assessment Results	No information available.

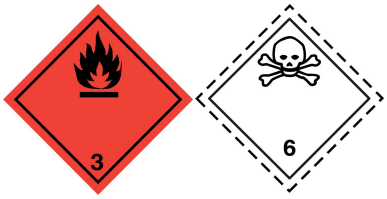
Section 13 Disposal Considerations

> Waste treatment methods

Waste Chemicals	Dispose of residual and non-recyclable solution to a licensed company.
Contaminated Packaging	Return containers to the manufacturer or dispose of according to national and local regulations.
Disposal Considerations	Refer to national and local regulations before disposal. For safety precautions for disposers, refer to Section 8.

Section 14 Transport Information

Transporting Label



Marine Pollutants	No
UN Dangerous Goods Number (UN No.)	UN1992
UN Proper Shipping Name	FLAMMABLE LIQUID, TOXIC, N.O.S.
Primary Transport Hazard Class	3
Secondary Transport Hazard Class	6.1
Packing Group	II
Packaging Method	Package according to the manufacturer's recommendation. Examples include: open-top steel drums; ampoules in ordinary wooden boxes; threaded glass bottles, glass bottles with press-in iron caps, plastic bottles, or metal drums (cans) in ordinary wooden boxes.

Section15 Regulatory Information

> International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECL	AIIC	ENCS
(3,3-DIMETHYL-1-BUTYNE)DICOBALT HEXACARBONYL	×	×	×	×	×	×	×	×	×

【EINECS】 European Inventory of Existing Commercial Chemical Substances

【TSCA】 Toxic Substances Control Act Inventory (United States)

【DSL】 Domestic Substances List (Canada)

【IECSC】 Inventory of Existing Chemical Substances in China

【NZIoC】 New Zealand Inventory of Chemicals

【PICCS】 Philippines Inventory of Chemicals and Chemical Substances

【KECL】 Korean Existing Chemicals List

【AIIC】 Australian Inventory of Industrial Chemicals

【ENCS】 Existing and New Chemical Substances (Japan)

Note

“√” Indicates that the substance included in the regulations

“×” That no data or included in the regulations

Section 16 Additional Information

Preparation Date	Dec. 1, 2022
Revision Date	Aug. 18, 2025
Revision Reason	SDS Update Section

Disclaimer

The information provided in this Safety Data Sheet is correct based on the latest knowledge, information and concepts available to us. The information provided is intended only as a guide for safe operation, use, processing, storage, transportation, disposal and discharge and is not intended as a guarantee or specification of quality. This information is only used for the specific substance specified and may not be suitable for mixing with any other substance or in all cases, unless otherwise specified in the context.