

# *PubChem*

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LABORATORY CHEMICAL SAFETY  
SUMMARY SHEETS

SEARCH BY COMPOUND NAME, CAS  
REGISTRY NUMBER, STRUCTURE,  
SEQUENCE, TAXONOMIC NAME

[HTTPS://PUBCHEM.NCBI.NLM.NIH.GOV/](https://pubchem.ncbi.nlm.nih.gov/)



# Explore Chemistry

Quickly find chemical information from authoritative sources



Try covid-19 aspirin EGFR C9H8O4 57-27-2 C1=CC=C(C=C1)C=O InChI=1S/C3H6O/c1-3(2)4/h1-2H3

Use Entrez  Compounds  Substances  BioAssays



Draw Structure



Upload ID List



Browse Data



Periodic Table

## PubChem

Search compounds

Browse Data to view types of data available (see example below).

▼ Safety and Hazards ?	173,042
▶ Accidental Release Measures ?	7,543
▶ Exposure Control and Personal Protection ?	7,677
▶ Fire Fighting ?	6,032
▶ First Aid Measures ?	4,941
▶ Handling and Storage ?	6,707
▶ Hazards Identification ?	172,179
▶ Other Safety Information ?	3,832
▶ Regulatory Information ?	4,637
▶ Safety and Hazard Properties ?	2,034
▶ Stability and Reactivity ?	5,797
▶ Transport Information ?	4,009

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SEARCH FOR

DMSO

Treating this as a text search.

BEST MATCH

 **Dimethyl Sulfoxide; DMSO; 67-68-5; Methyl Sulfoxide; Methylsulfinylmethane; Dimethylsulfoxide; Dimethyl Sulphoxide; Methane, Sulfinylbis-; ...**

Compound CID: 679  
 MF: C<sub>2</sub>H<sub>6</sub>OS MW: 78.14g/mol  
 IUPAC Name: methylsulfinylmethane  
 Isomeric SMILES: CS(=O)C  
 InChIKey: IAZDPXIOMUYVGZ-UHFFFAOYSA-N  
 InChI: InChI=1S/C2H6OS/c1-4(2)3/h1-2H3  
 Create Date: 2004-09-16

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COMPOUND SUMMARY

Dimethyl Sulfoxide

Cite Download

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PubChem CID 679

Structure

2D 3D Crystal

Find Similar Structures

Chemical Safety

 Irritant

Laboratory Chemical Safety Summary (LCSS) Datasheet

Molecular Formula C<sub>2</sub>H<sub>6</sub>OS or (CH<sub>3</sub>)<sub>2</sub>SO

Synonyms

dimethyl sulfoxide  
 DMSO  
 67-68-5  
 Methyl sulfoxide  
 Methylsulfinylmethane

More...

*PubChem* Search Results for DMSO

[COMPOUND SUMMARY](#) > [LABORATORY CHEMICAL SAFETY SUMMARY \(LCSS\)](#)

# Dimethyl Sulfoxide

[Cite](#)[Download](#)

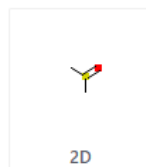
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PubChem CID

679

Structure

[Find Similar Structures](#)

Synonyms

dimethyl sulfoxide  
DMSO  
67-68-5  
Methyl sulfoxide  
Methylsulfinylmethane[More...](#)

Molecular Formula

 $C_2H_6OS$  or  $(CH_3)_2SO$ 

Molecular Weight

78.14

[Learn More About LCSS Project](#)

## *PubChem's* Laboratory Chemical Safety Summary (LCSS) for DMSO

## 9 Stability and Reactivity

### 9.1 Reactivity Profile

DIMETHYL SULFOXIDE decomposes violently on contact with many acyl halides and related compounds such as [acetyl chloride](#), [benzenesulfonyl chloride](#), [benzoyl chloride](#), [cyanuric chloride](#), [phosphorus trichloride](#), [phosphorus oxychloride](#), and [thionyl chloride](#) [Chem. Eng. News 35(9):87 (1957)].

▶ CAMEO Chemicals

### 9.2 Reactivity Alerts

#### 9.2.1 CSL Reaction Information

1 of 5	
CSL No	CSL00002
Reactants/Reagents	DMSO; perchloric acid
Reaction Class	oxidation
GHS Category	Explosive
Reaction Scale	S (up to 1g)
Warning Message	mixture can result in explosion
Source Reference	User-Reported
CSL Status	Approved
Additional Info	Lam et al, JTAC v 85 (2006) I, 25-30
Modified Date	2/27/2018

▶ Pistoia Alliance Chemical Safety Library

#### ▼ CAMEO Chemicals

Source	<a href="#">CAMEO Chemicals</a>
Record Name	DIMETHYL SULFOXIDE
URL	<a href="https://cameochemicals.noaa.gov/chemical/8559">https://cameochemicals.noaa.gov/chemical/8559</a>
Description	CAMEO Chemicals is a chemical database designed for people who are involved in hazardous material incident response and planning. CAMEO Chemicals contains a library with thousands of datasheets containing response-related information and recommendations for hazardous materials that are commonly transported, used, or stored in the United States. CAMEO Chemicals was developed by the National Oceanic and Atmospheric Administration's Office of Response and Restoration in partnership with the Environmental Protection Agency's Office of Emergency Management.
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#### ▼ Pistoia Alliance Chemical Safety Library

Source	<a href="#">Pistoia Alliance Chemical Safety Library</a>
Record Name	DMSO; perchloric acid
URL	<a href="http://www.pistoiaalliance.org/projects/chemical-safety-library/">http://www.pistoiaalliance.org/projects/chemical-safety-library/</a>
Description	The Pistoia Alliance Chemical Safety Library project is dedicated to sharing hazardous reaction safety information across the chemical industries.
License	<a href="https://www.cas.org/sites/default/files/documents/chemical-safety-library-terms.pdf">https://www.cas.org/sites/default/files/documents/chemical-safety-library-terms.pdf</a>

# Aqua regia

PubChem CID	90477010
Structure	 2D
Molecular Formula	Cl <sub>3</sub> H <sub>4</sub> NO <sub>3</sub>
Synonyms	AQUA REGIA Nitrohydrochloric acid nitromuriatic acid 8007-56-5 UNII-X3TT5X989E <a href="#">View More...</a>

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## PubChem Aqua regia (Compound)

### 8.1.2 Health Hazards

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / **Water**-Sensitive)]:  
TOXIC; inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns or death. Reaction with **water** or moist air may release toxic, corrosive or flammable gases. Reaction with **water** may generate much heat that will increase the concentration of fumes in the air. Fire will produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution **water** may be corrosive and/or toxic and cause environmental contamination. (ERG, 2020)

[▶ CAMEO Chemicals](#)

### 8.1.3 Fire Hazards

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / **Water**-Sensitive)]:  
Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. UN1796, **UN1802**, UN1826, **UN2032**, UN3084, UN3085, and, at concentrations above 65%, **UN2031** may act as oxidizers. Also consult ERG Guide 140. Vapors may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.). Substance may react with **water** (some violently), releasing corrosive and/or toxic gases and runoff. Contact with metals may evolve flammable **hydrogen** gas. Containers may explode when heated or if contaminated with **water**. (ERG, 2020)

[▶ CAMEO Chemicals](#)

### 8.1.4 Hazards Summary

Contains **nitrosyl chloride** and free **chlorine**; Corrosive; [Merck Index] A strong oxidizing agent with known catalytic activity; Reacts with air; Causes burns; [CAMEO] Causes burns and severe respiratory tract irritation; Highly toxic by ingestion and inhalation; [University of Oxford MSDS] See **Nitric acid** and **Hydrogen chloride**.

*Merck Index - O'Neil MJ, Heckelman PE, Dobbelaar PH, Roman KJ (eds). The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals, 15th Ed. Cambridge, UK: The Royal Society of Chemistry, 2013.*

[▶ Haz-Map, Information on Hazardous Chemicals and Occupational Diseases](#)

## CAMEO Chemicals

### AQUA REGIA



https://cameochemicals.noaa.gov/chemical/4079

#### Reactivity Profile

AQUA REGIA is a powerful oxidizing agent and a strong acid. Reacts exothermically with chemical bases (for example: amines and inorganic hydroxides) to form salts and water. Reacts with most metals, including gold and platinum, to dissolve them with generation of toxic and/or flammable gases. Can initiate polymerization in polymerizable organic compounds. Reacts with cyanide salts to generate toxic hydrogen cyanide gas. Generates flammable and/or toxic gases with dithiocarbamates, isocyanates, mercaptans, nitrides, nitriles, sulfides, and weak or strong reducing agents. Additional exothermic gas-generating reactions occur with sulfites, nitrites, thiosulfates (to give H<sub>2</sub>S and SO<sub>3</sub>), dithionites (SO<sub>2</sub>), and carbonates (CO<sub>2</sub>).

#### Belongs to the Following Reactive Group(s)

- [Acids, Strong Oxidizing](#)