



>>Entry Name: Molybdenum carbides

CAS Registry Number: 12627-57-5

Related CAS Registry Numbers(s): 11082-09-0 12011-98-2 12076-38-9 12122-47-3 12122-48-4 12151-75-6 12153-50-3 12543-74-7 87970-74-9 110771-77-2 112909-68-9 116640-58-5 116640-59-6 117991-26-1 117991-27-2 124545-85-3 124567-52-8 124567-53-9 126282-62-0 130459-28-8

Molecular Formula: [CMo]

>>Variant: Molybdenum carbide (Mo₆C)

CAS Registry Number: 12069-90-8

Molecular Formula: CMo₆

Molecular Weight: 587.651

Accurate Mass: 599.432436

Percentage Composition: C 2.04%; Mo 97.96%

Source/Synthesis: Obt. during treatment (tempering, quenching, annealing) of steels and alloys

Use/Importance: Microconstituent and precipitant in steel and alloy matrices

>>Variant: Molybdenum carbide (Mo₂₃C₆)

CAS Registry Number: 12152-15-7

Molecular Formula: C₆Mo₂₃

Molecular Weight: 2278.686

Accurate Mass: 2323.824338

Percentage Composition: C 3.16%; Mo 96.84%

Source/Synthesis: Formed during treatment of steels and alloys

Use/Importance: Microconstituent and precipitant in steel and alloy matrices

Solubility: Insol.

>>Variant: Molybdenum carbide (Mo₂C)

Synonym(s): Molybdenum hemicarbide

CAS Registry Number: 12069-89-5

Molecular Formula: CMo₂

Molecular Weight: 203.891

Accurate Mass: 207.810812

Percentage Composition: C 5.89%; Mo 94.11%

Source/Synthesis: Synth. by many methods, e.g. heating molybdenum powder and carbon black at about 1400-1500° under H₂, or sonification of Mo(CO)₆ followed by heat treatment to remove O₂

Use/Importance: Used in cutting tools and other wear resistant surfaces, also in reactor and aerospace technology, owing to extreme hardness and high temp. stability

Physical Description: Oxidises on heating in air to MoO₂. Reacts with oxidising acids but not with dil. aq. alkali. Hard, electrical conductor exhibits superconductivity up to 2.9K

Melting Point: Mp 2687°

Solubility: Insol.

Aldrich: 39953-1

>>Variant: Molybdenum carbide (MoC)

CAS Registry Number: 12011-97-1

Molecular Formula: CMo

Molecular Weight: 107.951

Accurate Mass: 109.905406

Percentage Composition: C 11.13%; Mo 88.87%

Source/Synthesis: Synth. by many methods e.g. heating Mo powder and carbon black at about 1400-1500° under hydrogen

Use/Importance: Used in cutting tools and other wear-resistant surfaces, also in reactor and aerospace technology, owing to extreme hardness and high temp. stability

Physical Description: Oxidises on heating in air to MoO₂ + CO₂. Reacts with oxidising acids but not dil. aq. alkali. Hard, electrical conductor, exhibits superconductivity, up to 7.9K

Melting Point: Mp 2692 prob. dec.°

Solubility: Insol.

References: