



>>Entry Name: Chromium(II) chloride (CrCl₂), 9CI

Synonym(s): Chromium dichloride. Chromous chloride

CAS Registry Number: 10049-05-5

Related CAS Registry Numbers(s): 13820-89-8 39345-92-1

CrCl₂

Molecular Formula: Cl₂Cr

Molecular Weight: 122.902

Accurate Mass: 121.878213

Percentage Composition: Cl 57.69%; Cr 42.31%

General Statement: Distorted rutile struct.

Source/Synthesis: Synth. by reduction of CrCl₃ in H₂ with HCl at 500°; or from Cr + HCl at 1150-2000°

Use/Importance: Versatile reducing agent, catalyst, used in chromising, and in prep. of Cr metal

Physical Description: Hygroscopic lustrous white cryst. Forms blue aq. soln. which readily absorbs O₂

Melting Point: Mp 815° (820-824°)

Boiling Point: Bp 1120°

Solubility: Sol. H₂O

Other Data: Can be subl. *in vacuo*. Antiferromagnetic at low temps.; above = 40K, obeys Curie-Weiss law, $\mu_{\text{eff}} = 5.13\mu_{\text{B}}$ (θ 149°)

Aldrich: 45078-2

Fluka: 27093

>>Derivative: Dihydrate

Physical Description: Pale green

Other Data: Forms anhyd. compd. at = 114°

>>Derivative: Trihydrate

Physical Description: Pale blue

Other Data: Forms dihydrate at = 85°

>>Derivative: Tetrahydrate

Synonym(s): Tetraaquachromium(II) dichloride

CAS Registry Number: 13931-94-7

Molecular Formula: Cl₂CrH₈O₄

Molecular Weight: 194.962

Accurate Mass: 193.920473

Percentage Composition: Cl 36.37%; Cr 26.67%; H 4.14%; O 32.83%

Physical Description: Hygroscopic, air-sensitive bright blue cryst; changes to isomeric dark green form at 38°

Solubility: Sol. H₂O

Other Data: Formulated as [Cr(OH₂)₄]Cl₂. $\mu_{\text{eff}} = 4.95\mu_{\text{B}}$ (298K), forms trihydrate at =54°

>>Derivative: Bis-MeCN complex

Synonym(s): Chromium(II) chloride bis(acetonitrile). Bis(acetonitrile)dichlorochromium(II)

Molecular Formula: C₄H₆Cl₂CrN₂

Molecular Weight: 205.006

Accurate Mass: 203.931311

Percentage Composition: C 23.44%; H 2.95%; Cl 34.59%; Cr 25.36%; N 13.66%

Physical Description: Pale blue cryst.; v. air-sensitive in soln. and when wet

Solubility: Insol. MeCN; sol. EtOH

Other Data: $\mu_{\text{eff}} = 4.8\mu_{\text{B}}$ (298K)

References: