



>>Entry Name: Chromium(III) fluoride (CrF₃)

Synonym(s): Chromium trifluoride. Chromic fluoride

CAS Registry Number: 7788-97-8

Related CAS Registry Numbers(s): 11113-56-7 68374-27-6 123333-98-2

CrF₃

Molecular Formula: CrF₃

Molecular Weight: 108.991

Accurate Mass: 108.935718

Percentage Composition: Cr 47.71%; F 52.29%

General Statement: Isostructural with VF₃

Source/Synthesis: Synth. from e.g. anhydrous CrCl₃ + HF at 300-500°

Use/Importance: Used in chromising, as catalyst

Physical Description: Green needles

Melting Point: Mp 1404° (1100°)

Solubility: Insol. H₂O

Other Data: $\mu_{\text{eff}} = 3.85$; $4.1\mu_{\text{B}}$ ($\theta -124$ to -133 , 298K). Lower Mp prob. due to contamination with CrF₂. Tetrahydrate also known

Aldrich: 44976-8

Rare Chemicals Library: S66909-1

>>Derivative: Trihydrate

Synonym(s): Triaquatrifluorochromium(III)

CAS Registry Number: 16671-27-5

Molecular Formula: CrF₃H₆O₃

Molecular Weight: 163.037

Accurate Mass: 162.967413

Percentage Composition: Cr 31.89%; F 34.96%; H 3.71%; O 29.44%

Use/Importance: Rhombohedral green cryst.

Other Data: Formulated as CrF₃(OH₂)₃

>>Derivative: Nonahydrate

Synonym(s): Hexaaquachromium(III) trifluoride trihydrate

CAS Registry Number: 102430-09-1

Molecular Formula: CrF₃H₁₈O₉

Molecular Weight: 271.128

Accurate Mass: 271.030803

Percentage Composition: Cr 19.18%; F 21.02%; H 6.69%; O 53.11%

Physical Description: Rhombohedral violet cryst. + 3H₂O

Other Data: Formulated as [Cr(OH₂)₆]F₃·3H₂O

References:

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