



>>Entry Name: Scandium

CAS Registry Number: 7440-20-2

Related CAS Registry Numbers(s): 14336-93-7 14336-96-0 22537-27-5 22537-29-7

Sc

Molecular Formula: Sc

Molecular Weight: 44.956

Accurate Mass: 44.955914

Percentage Composition: Sc 100.00%

Abundance: 25 ppm (earth's crust). Atomic radius 161 pm. Exists in α -form (hcp) below 950° and β -form (bcc) above this temp.

Source/Synthesis: Natural ores include thortveitite, davidite. Obt. as by-product from U-extraction. Metal obt. by metallothermic redn. of ScF_3 , or by electrolysis of fused $\text{ScCl}_3/\text{KCl-NaCl}$

Use/Importance: Main use is in metal halide lamps based on ScI_3

Physical Description: Soft silvery metal: turns yellow/pink on exposure to air. Reacts with H_2O with liberation of H_2 . Ignites easily

Melting Point: Mp 1541° (1539°)

Boiling Point: Bp 2832°

Hazard & Toxicity: Little information available on toxicity

Aldrich: 26124-6

Fluka: 84610

>>Variant: Scandium 41

CAS Registry Number: 14092-96-7

Source/Synthesis: Prod. from Ca (p,γ), or ^{40}Ca (d,n)

Other Data: $I = -7/2$; $\mu = 5.431 \mu_{\text{N}}$. Decays by orbital electron capture or $\beta^{(+)}$ emission to ^{41}Ca

>>Variant: Scandium 42

CAS Registry Number: 14391-80-1

Source/Synthesis: Prod. from K (α,n), Ca (t,n), or ^{42}Ca (p,n)

Other Data: $I = +0$. Decays by orbital electron capture or $\beta^{(+)}$ emission to ^{42}Ca

>>Variant: Scandium 42m

Source/Synthesis: Prod. from K (α,n), or Ca (p,n)

Other Data: $I = +7$. Decays by orbital electron capture or $\beta^{(+)}$ emission to ^{42}Ca

>>Variant: Scandium 43

CAS Registry Number: 14276-61-0

Source/Synthesis: Prod. from Ca (α,p). Daughter of ^{43}Ti

Other Data: $I = -7/2$; $\mu = +4.62 \mu_{\text{N}}$. Decays by orbital electron capture or $\beta^{(+)}$ emission to ^{43}Ca

>>Variant: Scandium 44

CAS Registry Number: 14391-94-7

Source/Synthesis: Prod. from K (α,n), Sc (γ,n), or by bombardment of Ca with α -particles. Daughter of $^{44\text{m}}\text{Sc}$ (2.442 d), also of ^{44}Ti

Other Data: $I = +2$; $\mu = +2.56 \mu_{\text{N}}$. Decays by orbital electron capture or $\beta^{(+)}$ emission to ^{44}Ca

>>Variant: Scandium 44m

Source/Synthesis: Prod. from K (α,n), Sc (γ,n), or by bombardment of Ca with α -particles

Other Data: $I = +6$; $\mu = +3.88 \mu_{\text{N}}$. Decays by isomeric transition to ^{44}Sc (98.61%), also by orbital electron capture or $\beta^{(+)}$ emission (1.39%) to ^{44}Ca