



>>Entry Name: Urea, 9CI, 8CI, USAN

ENTRY UNDER REVIEW

Synonym(s): Carbamide. Ureaphil

CAS Registry Number: 57-13-6

Related CAS Registry Numbers(s): 1433-11-0 17687-37-5 21351-39-3

H_2NCONH_2

Molecular Formula: $\text{CH}_4\text{N}_2\text{O}$

Molecular Weight: 60.055

Accurate Mass: 60.032363

Percentage Composition: C 20.00%; H 6.71%; N 46.65%; O 26.64%

Source/Synthesis: Manuf. on large scale from NH_3 and CO_2 at high pressure

Biological Source: Constit. of all vertebrate tissues and of many invertebrates. Found esp. in urine. Also occurs in many plants in traces and in larger amounts in fungi

Use/Importance: Fertiliser, cattle feed supplement, also used in manuf. of urea-formaldehyde resins. Forms clathrates (inclusion complexes) with hydrocarbons, useful in petrochemicals industry. Important industrial chemical, USA production in 1999 9.33 million tons

Biological Use/Importance: Diuretic, dermatic, keratolytic and antiseptic agent

Physical Description: Tetragonal needles or prisms with faint salty taste (H_2O or EtOH)

Melting Point: Mp 133-135°

Solubility: V. sol. H_2O ; sol. MeOH, EtOH; insol. CHCl_3 , C_6H_6

pKa Value: $\text{p}K_a$ 0.1 (21°)

Calculated Log P Data: Log P -2.11 (calc)

Other Data: Aq. solns hydrol. v. slowly to ammonium carbamate then to NH_3 and CO_2 . Weak base. Polymer with formaldehyde (Polynoxylin, BAN, INN) used as a topical antibacterial and antifungal agent

Hazard & Toxicity: Irritant to skin, eyes, respiratory tract and mucous membranes. Human reprod. effects (abortifacient), exp. reprod. effects. LD_{50} (rat, orl) 8471 mg/kg

Aldrich: U270-9

Fluka: 51461

Sigma: U1250

>>Derivative: Hydrochloride

CAS Registry Number: 506-89-8

Physical Description: Plates or faintly yellow, deliquescent cryst.

Melting Point: Mp 145 dec.°

Solubility: Sol. H_2O

>>Derivative: Nitrate

CAS Registry Number: 124-47-0

Molecular Formula: $\text{CH}_5\text{N}_3\text{O}_4$

Molecular Weight: 123.068

Accurate Mass: 123.028007

Percentage Composition: C 9.76%; H 4.09%; N 34.14%; O 52.00%

Use/Importance: Fertiliser

Physical Description: Cryst.

Melting Point: Mp 163° (157°)

Solubility: Sol. EtOH, MeOH; insol. Et_2O , C_6H_6 , CHCl_3

Other Data: Less hygroscopic than urea

>>Derivative: Phosphate salt

CAS Registry Number: 4861-19-2

Extra CAS Registry Numbers(s): 4401-74-5

Use/Importance: Used in animal feeds, fertilisers and flame retardants

Physical Description: Hygroscopic cryst. (H_2O)

Melting Point: Mp 118-121°

Aldrich: 29282-6

Fluka: 51462

Sigma: U3378