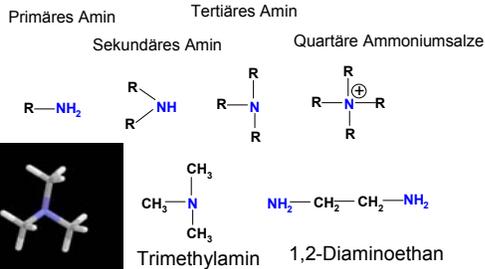


1.8. Aliphatische Amine

Funktionelle Gruppe - Aminogruppe: $-NH_2$

Alkylderivate des Ammoniaks

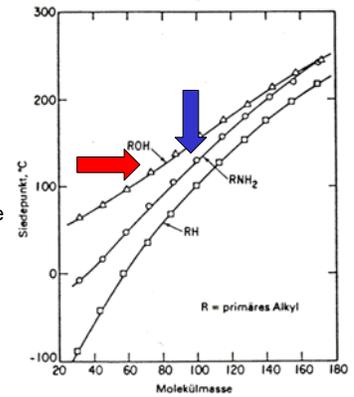
Nomenklatur



N-H Bindung:
Polarität geringer
als O-H Bindung

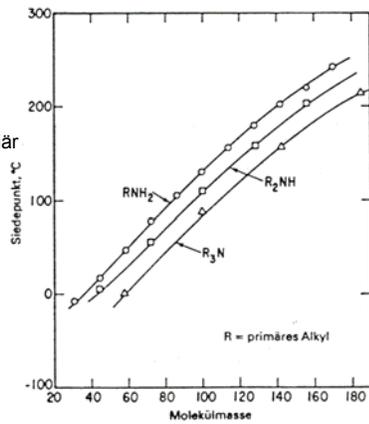


Niedrigere Siedepunkte
als Alkohole
Wasserlöslichkeit



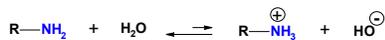
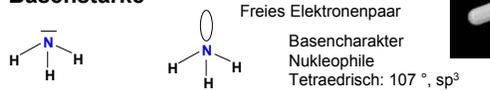
Abhängigkeit der
Siedepunkte von der
Anzahl der N-H
Bindungen:

Primär > sekundär > tertiär



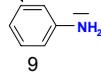
Klasse	Formel	Name	Schmelztemp. °C Fp	Siedep. °C Kp	Löslichkeit g/100g H ₂ O	Besitzkonstante K _s · 10 ⁴
aliphatische Monoamine	H_2C-NH_2	Methylamin	-92	-7,5	-	4,4
	$(H_2C)_2NH$	Dimethylamin	-96	7,5	-	5,1
	$(H_2C)_3N$	Trimethylamin	-117	3	91	0,6
aliphatische Diamine	H_2C-NH_2	Ethylamin	-80	17	-	4,7
	$(H_2C)_2NH$	Diethylamin	-29	55	löslich	9,5
	$(H_2C)_3N$	Triethylamin	-115	89	-	5,5
Stickstoff-Heterocyclen		Pyrrolidin	-	88,5	-	-
		Piperidin	-9	106	-	-
aliphatische Diamine	$H_2N-(CH_2)_2-NH_2$	Ethyldiamin (1,2-Diaminoethan)	8,5	117	löslich	-
	$H_2N-(CH_2)_6-NH_2$	Hexamethylen-diamin (1,6-Diaminohexan)	39	195	löslich	-
aromatische Monoamine		Anilin	-6	184	3,7	4,2 · 10 ⁻⁶

Basenstärke



$$K_B = \frac{[R-NH_3^+] \cdot [HO^-]}{[R-NH_2]}$$

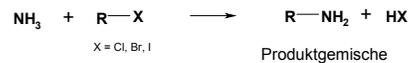
$$pK_B = -\log K_B$$



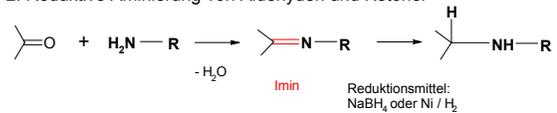
Aliphatische Amine sind **schwache** Basen, aromatische Amine sind **sehr schwache** Basen

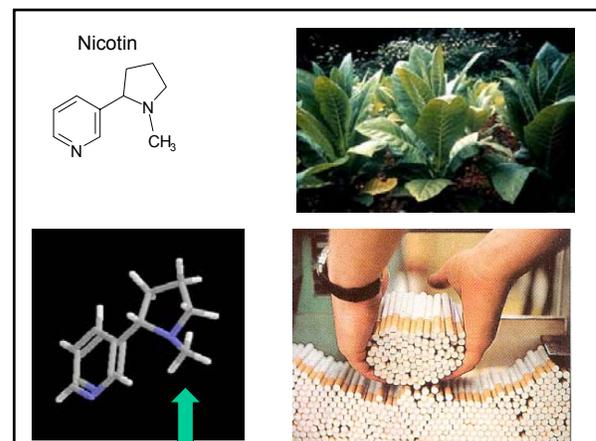
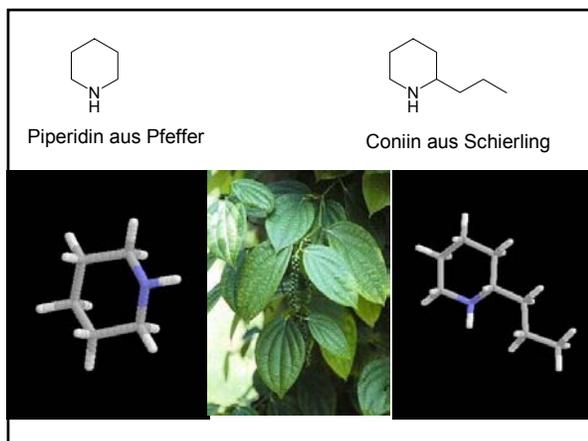
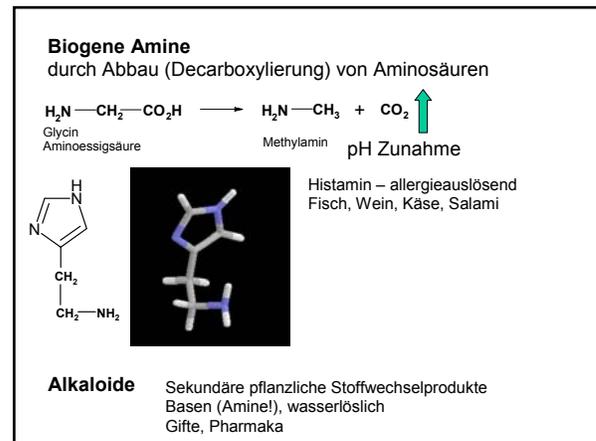
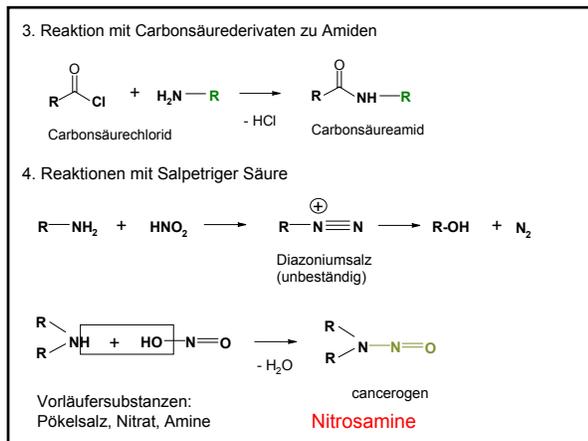
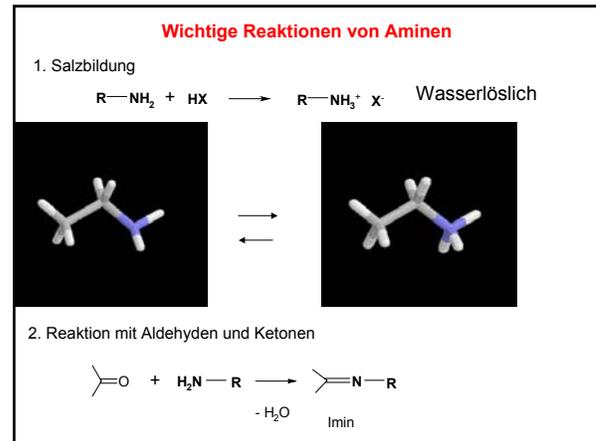
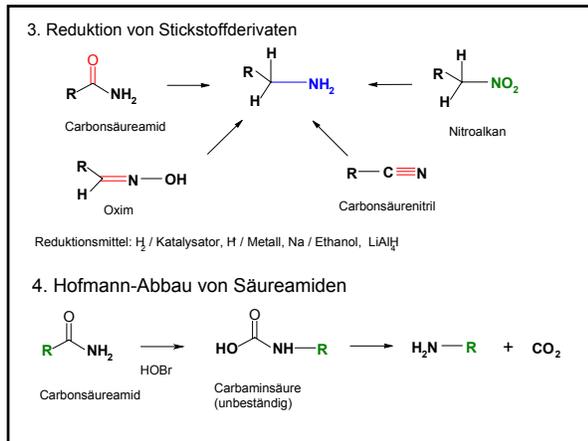
Herstellung von Aminen

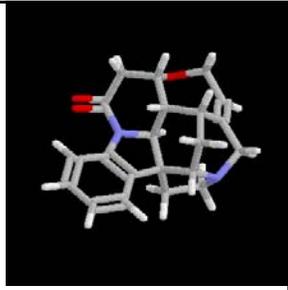
1. Aus Halogenalkanen (S_N-Reaktion)



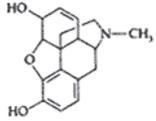
2. Reduktive Aminierung von Aldehyden und Ketonen







Morphin



Strychnin

Pilzgifte: Muscarin