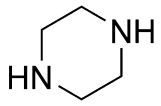
Technical Data Sheet
PIPERAZINE 68% (PIP-68)

General



MW: 86.1 $gmol^{-1}$
CAS No.: 110-85-0
EINECS No.: 203-808-3
IUPAC name: Piperazine

Piperazine (PIP; CAS 110-85-0) is a cyclic ethylene amine with two secondary amine groups. In its pure form, PIP has a freezing point of 106°C and a boiling point of 147°C. Due to its narrow liquid range, commercial piperazine is often supplied as 68 % active content diluted with water (PIP 68%). AkzoNobel supplies Piperazine 68 % and Piperazine 99 % – more commonly known as "anhydrous piperazine" or "piperazine flakes". Piperazine is commonly used as a raw material for several commercially available drugs. Other possible application fields include polyamides, gas sweetening and as an intermediate in PU catalysts.

Sales Specification

Characteristic	Unit	Specification	Methods of Analysis
Appearance	-	Clear liquid or white solid	200
Piperazine	w%	67-69, min 99.7 (as water free)	555
Water	w%	31-33	305
Color	Hazen	max 30	201

Methods of Analysis are available upon request.
In case of dispute, the listed Method of Analysis will be used as reference methods.

Physical and Chemical Properties

Property	Value	Property	Value
Form	Solid (20°C)	pH	10 - 12 at 15 % solution
Colour	Colourless, light yellow	Melting point/freezing point	35 - 45 °C
Odour	amine-like	Boiling point/boiling range	110 °C
Flammability (solid, gas)	Not classified as a flammability hazard	Flash point	100 - 199 °C
Explosive properties	Not explosive	Ignition temperature	> 150 °C
Oxidizing properties	The substance or mixture is not classified as oxidizing	Vapour pressure	2,6 hPa at 20 °C
Water solubility	150 g/l at 20 °C	Relative vapour density	3,0
Solubility in other solvents	Soluble in ethanol and acetone	Density	1 020 kg/m3 at 50 °C
		Relative density	1,020 at 50 °C
		Viscosity, dynamic	15 mPa.s at 50 °C