

4. CHEMICAL AND PHYSICAL INFORMATION

4.1 CHEMICAL IDENTITY

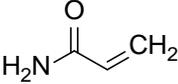
Acrylamide is an unsaturated amide that is produced mainly for use as an intermediate in the production of polyacrylamide (Abdelmagic 1982; Haberman 2002). Information regarding the chemical identity of acrylamide is located in Table 4-1.

4.2 PHYSICAL AND CHEMICAL PROPERTIES

Acrylamide is a white or colorless, odorless crystalline solid. Information regarding the physical and chemical properties of acrylamide is located in Table 4-2. Acrylamide is stable at room temperature but can violently polymerize at its melting point or under UV light (Lewis 2000, 2007; O'Neil et al. 2006). Acrid fumes, as well as NO_x , may be released when it is heated to decomposition (Lewis 2000). Acrylamide is soluble in water, alcohol, and acetone, and is insoluble in benzene and heptanes (Lewis 2007).

4. CHEMICAL AND PHYSICAL INFORMATION

Table 4-1. Chemical Identity of Acrylamide

Characteristic	Information	Reference
Chemical name	Acrylamide	
Synonym(s)	AAM; acrylagel; acrylic acid amide; acrylic amide; akrylamid (Czech); amresco acryl-40; amid kyseliny akrylove; ethylenecarboxamide; optimum; propenamide; 2-propenamide; propereamide; propenoic acid amide; vinyl amide	HSDB 2009; Lewis 2000
Registered trade name(s)	No data	
Chemical formula	C ₃ H ₅ NO	HSDB 2009; WHO 2003
Chemical structure		
Identification numbers:		
CAS registry	79-06-1	
NIOSH RTECS	NIOSH/AS3325000	NIOSH 2005
EPA hazardous waste	U007	HSDB 2009; Lewis 2000
OHM/TADS	No data	
DOT/UN/NA/IMDG shipping	UN 2074; IMO 6.1	HSDB 2009; Lewis 2000
HSDB	191	HSDB 2009
NCI	No data	
STCC	49 091 83	HSDB 2009
	49 131 87	HSDB 2009

CAS = Chemical Abstracts Service; DOT/UN/NA/IMDG = Department of Transportation/United Nations/North America/International Maritime Dangerous Goods Code; EPA = Environmental Protection Agency; HSDB = Hazardous Substances Data Bank; NCI = National Cancer Institute; NIOSH = National Institute for Occupational Safety and Health; OHM/TADS = Oil and Hazardous Materials/Technical Assistance Data System; RTECS = Registry of Toxic Effects of Chemical Substances; STCC = Standard Transport Commodity Code

4. CHEMICAL AND PHYSICAL INFORMATION

Table 4-2. Physical and Chemical Properties of Acrylamide

Property	Information	Reference
Molecular weight	71.08	Haberman 2002; HSDB 2009
Color	White Colorless	HSDB 2009; Lewis 2000 Lewis 2007; WHO 2003
Physical state	Crystalline solid	HSDB 2009; Lewis 2000 Lewis 2007; WHO 2003
Melting point	84.5 °C	Lewis 2007
Boiling point	192.6 °C 87 °C (2 mm) 103 °C (5 mm) 125 °C (25 mm)	Lide 2008 O'Neil et al. 2006 O'Neil et al. 2006 Lewis 2007; O'Neil et al. 2006
Density at 30 °C/4 °C	1.122	HSDB 2009; Lewis 2007
Odor	Odorless	Lewis 2007
Odor threshold:		
Water	No data	
Air	No data	
Solubility:		
Water at 0 °C	No data	
at 20 °C	3.711x10 ⁵ mg/L	HSDB 2009
at 30 °C	4.048x10 ⁵ mg/L	HSDB 2009
Organic solvents	Soluble in water, alcohol, acetone Insoluble in benzene and heptanes	Lewis 2007 Lewis 2007
Partition coefficients:		
Log K _{ow}	-0.67	HSDB 2009
Log K _{oc}	No data	
Vapor pressure		
at 25 °C	0.9 Pa (7x10 ⁻³ mm Hg)	Haberman 2002; HSDB 2009
at 40 °C	4.4 Pa (3.3x10 ⁻² mm Hg)	Haberman 2002
at 50 °C	9.3 Pa (7.0x10 ⁻² mm Hg)	Haberman 2002
Henry's law constant:		
at 25 °C	1.7x10 ⁻⁹ atm-m ³ /mol (estimated)	HSDB 2009
Autoignition temperature	424 °C	HSDB 2009
Flash point	138 °C (closed cup)	HSDB 2009
Flammability limits	No data	
Conversion factors (25 °C, 1 atm)	1 mg/m ³ =0.34 ppm 1 ppm=2.95 mg/m ³	HSDB 2009

4. CHEMICAL AND PHYSICAL INFORMATION

This page is intentionally blank.