

APPENDIX 2. Identified Interstellar and Circumstellar Molecules

Simple Hydrides, Oxides, Sulfides, Halogens and related molecules				
H ₂ (IR,UV)	CO	NH ₃	CS	NaCl*
HCl	SiO	SiH ₄ * (IR)	SiS	AlCl ₃ *
H ₂ O	SO ₂	C ₂ (VIS)	H ₂ S	KCl*
N ₂ O	OCS	CH ₄ (IR)	PN	AlF ₃ *
HF	CO ₂ (IR)			
Nitriles and Acetylene derivatives				
C ₃ (IR,UV)	HCN	CH ₃ CN	HNC	C ₂ H ₄ * (IR)
C ₅ * (IR)	HC ₃ N	CH ₃ C ₃ N	HNCO	C ₂ H ₂ (IR)
C ₃ O	HC ₅ N	CH ₃ C ₅ N ?	HNCS	C ₄ H ₂ * (IR)
C ₃ S	HC ₇ N	CH ₃ C ₂ H	HNCCC	
C ₄ Si*	HC ₉ N	CH ₃ C ₄ H	CH ₃ NC	
	HC ₁₁ N	CH ₃ CH ₂ CN	HCCNC	
	HC ₂ CHO	CH ₂ CHCN		
Aldehydes, Alcohols, Ethers, Ketones, Amides and related molecules				
H ₂ CO	CH ₃ OH	HCOOH	CH ₂ NH	CH ₂ CC
H ₂ CS	CH ₃ CH ₂ OH	HCOOCH ₃	CH ₃ NH ₂	CH ₂ CCC
CH ₃ CHO	CH ₃ SH	(CH ₃) ₂ O	NH ₂ CN	
NH ₂ CHO	(CH ₃) ₂ CO	H ₂ CCO	CH ₃ COOH	
Cyclic Molecules				
C ₃ H ₂	c-C ₃ H	SiC ₂	SiC ₃ *	c-C ₂ H ₄ O
Molecular Ions				
CH ⁺ (VIS)	HCO ⁺	HCNH ⁺	H ₃ O ⁺	HN ₂ ⁺
HCS ⁺	HOCO ⁺	HC ₃ NH ⁺	HOC ⁺	H ₃ ⁺ (IR)
CO ⁺	H ₂ COH ⁺	SO ⁺		
Radicals				
OH	C ₂ H	CN	C ₂ O	C ₂ S
CH	C ₃ H	C ₃ N	NO	NS
CH ₂	C ₄ H	HCCN*	SO	SiC*
NH (UV)	C ₅ H	CH ₂ CN	HCO	SiN*
NH ₂	C ₆ H	CH ₂ N	MgNC	CP*
HNO	C ₇ H	NaCN	MgCN	
C ₆ H ₂	C ₈ H	C ₅ N*		

From Ohishi (1997, in IAU Symposium 178 'Molecules in Astrophysics', p. 62, see also Appendix 1 of that book, p. 537) with detections as of January 2000 added. Species denoted with * have only been detected in the circumstellar envelope of carbon-rich stars. Most molecules have been detected at radio and millimeter wavelengths, unless otherwise indicated (IR, VIS or UV only). An up-to-date list of detected molecules can be found through the home page of the IAU Astrochemistry working group <<http://www.strw.leidenuniv.nl/~iau34>>.