UV Molecular Absorption Cross-sections

The folder UV\Cross-section contains files of UV cross-sections. The definition and units have been described in articles about the HITRAN compilation. Each molecule is placed in a single file. Within that file are sets of temperature and pressure pairs. The sets have a header that provides information to programs reading the data and also points to a reference for that observation. The sets contain absorption cross-sections (ten to a line from left to right) that are in equal wavenumber (cm^{-1}) increments, and the intervals can be determined by the minimum and maximum wavenumber and the number of points, namely

$$\Delta \nu = \frac{\nu_{max} - \nu_{min}}{npts - 1}$$

where ν_{max} is the maximum (final) wavenumber of the set, ν_{min} is the minimum (initial) wavenumber of the set, and *npts* is the number of points in the set. The format of the header is given below.

Cross-section Header Format

Chemical symbol		Wavenumber Min	Max	No. Pts.	Temp [K]	Press [torr]	Max X-section	Res.	Common Name	Not used	Br	Ref No
20		10	10	7	7	6	10	5	15	4	3	3

10	20	30	40	50	60	70	80	90

Note: **Chemical Symbol** is right adjusted; **Res**. is resolution in cm^{-1} for FTS measurements, and in milli-Angstroms for grating measurements in the UV (xxxmÅ). **Br** indicates the broadening gas, such as air.

The \alt folder contains some of the files with original data, for example in their original scale in wavelength before they have been mapped into the equal-interval wavenumber scale used by most programs.

Summary of molecules represented by UV cross-section data in *HITRAN* (next page)

Molecule	Common Name	Temperature Range (K)	Pressure Range (torr)	Number of T,P sets	Spectral Coverage (cm^{-1})
BrO	Bromine monoxide	228	0	1	26106-34919
		298	0	1	25927-34974
C_6H_6	Benzene	253-293	0	5	36990-41785
C_7H_8	Toluene	263-293	0	4	35990-41285
H_2CO	Formaldehyde	280-300	0	3	25919-33300
N_2O	Nitrous oxide	296	0	1	44925-58956
NO_2	Nitrogen dioxide	220-294	0	2	15001-42003
NO_3	Nitrogen trioxide	298	0	1	12591-21000
O_3	Ozone	200-300	0	6	29164-40798
OClO	Chlorine dioxide	213	0	1	22701-31201
m-$C_6H_4(CH_3)_2$	Meta-xylene	273-293	0	3	34990-41285
o-$C_6H_4(CH_3)_2$	Ortho-xylene	273-293	0	3	34990-41285
p-$C_6H_4(CH_3)_2$	Para-xylene	273-293	0	3	34990-41285
SO_2	Sulfur dioxide	298-358	0	4	23995-43985
		213	0	3	41691-58452