Constants for Gas-Phase Molecules of Interest for ISO:

a Bibliographical Compilation

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Abstract

A compilation of references to molecular data relevant to infrared and radio spectra was made for species – molecules, radicals ions – of astrophysical interest. This work was initiated in 1989 during the preparation for the Infrared Space Observatory mission. Its scope is wider, however, and it should interest all radio and infrared observers, involved in planetary sciences or in the interstellar medium.

The compilation presently includes about 230 species, representing all molecules already detected in the interstellar medium, in comets and in planetary atmospheres, as well as several additional molecules believed to be of important astrophysical interest. It is regularly updated. Needs for further laboratory data are pointed out. For each species, the compilation lists – when they are known – the photodissociation rates, the fundamental bands of vibration and their strengths, the main rotational constants and the dipole moment. All related references are given. References to the first detections in planetary atmospheres, comets and interstellar medium are also given. No effort has been made to point to the best data. The reader is asked to go the original publications to make his own opinion and to check the data. This work is rather intended to provide starting points for beginners in this field.

This compilation is not distributed in printed form. The current version may be obtained by anonymous ftp to `ftp.obspm.fr/transit/CROVISIER/molecule`.