

# **Methanol Exhaust Emissions**

## **CH<sub>3</sub>OH**

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### **Abstract**

As an organic gas molecule, methanol is characterized as a building block for life, star formation, and fuel cells. Methanol energy transition states at 6.7 and 12.2 GHz can be found in relative abundance along the Milky Way galactic plane and are seen spectroscopically as whirling maser pockets with cores and halo structures of 2 - 300 AU in diameter.

The Jupiter Space Station uses a methanol receiving chain comprised of a 12' dish, a custom tuned 12 GHz Seavey feed, a 60 dB gain LNA with a PLL controlled commercial downconverter, and the combination of a gas spectrometer, the SpectraCyber, and a sweeping spectrum analyzer. The spectrum analyzer has custom radio astronomy specific data acquisition software, DigiSpectrum, for analyzing Doppler shifted gas sources.

This paper is a report of prospective methanol indicators for life in space, initial data collection, technical problem resolutions, and observing considerations for mapping methanol in space.