

**Integrated band strength of near-IR CH<sub>4</sub> bands in a CH<sub>4</sub>:N<sub>2</sub>=1:1 ice mixture at 16 K.** The experimental procedure is described in Brunetto et al. (2008, ApJ 686, 1480). Please refer to this article when you use the values given below.

Peak <sup>a</sup> (cm <sup>-1</sup> )	Position (μm)	FWHM <sup>a</sup> (cm <sup>-1</sup> )	Mode <sup>b</sup>	Strength <sup>c</sup> , A (cm molecule <sup>-1</sup> )
2817.9	3.5487	12.1	$\nu_2+\nu_4$	$2.88 \times 10^{-19}$
3012.2	3.3198	9.6	$\nu^3$	saturated <sup>d</sup>
3848.1	2.5987	5.4	$3\nu_4$	– <sup>e</sup>
4119.5	2.4275	13.5	$\nu_2+2\nu_4$	– <sup>e</sup>
4205.6	2.3778	9.3	$\nu_1+\nu_4$	$3.49 \times 10^{-19}$
4305.4	2.3227	14.1	$\nu_3+\nu_4$	$6.43 \times 10^{-19}$
4532.8	2.2061	14.1	$\nu_2+\nu_3$	$6.18 \times 10^{-20}$
5568.9	1.7957	11.1	$\nu_3+2\nu_4$	$1.33 \times 10^{-20}$
5804.1	1.7229	12.5	$\nu_2+\nu_3+\nu_4$	$1.99 \times 10^{-20}$
5993.3	1.6685	13.7	$2\nu_3$	$6.05 \times 10^{-20}$
7495.1	1.3342	12.9	$\nu_2+2\nu_3$	$7.20 \times 10^{-21}$

Note:

<sup>a</sup> Errors on peak position and FWHM are of 0.5 cm<sup>-1</sup>.

<sup>b</sup> Mode identifications are after Quirico and Schmitt 1997, Icarus, 127, 354

<sup>c</sup> Errors on band strengths are of the order of 5%-10%.

<sup>d</sup> The 3010 cm<sup>-1</sup> band is saturated in our thick film spectra.

<sup>e</sup> The feature is too weak to allow band strength calculations.