

CHANGE OF FAR-INFRARED SPECTRA OF  $\beta$ -HYDROQUINONE CLATHRATE OF ACETONITRILE WITH TIME

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Far-infrared spectra of  $\beta$ -hydroquinone clathrate of acetonitrile were found to change with time. The change is explained by decomposition of  $\beta$ -hydroquinone clathrate of acetonitrile into  $\alpha$ -hydroquinone.

In the papers, which dealt with  $\beta$ -hydroquinone clathrate of acetonitrile spectroscopically,<sup>1)</sup> no descriptions about change of the spectra of the substance with time are found, and so is the case even in the latest paper.<sup>2)</sup> In the course of the study by the present author,<sup>3)</sup> this change was found. Far-infrared spectrum ( Fig. 1(a) ) of powder of  $\beta$ -hydroquinone clathrate of acetonitrile stored in a sample bottle changes with time as shown in Fig. 1(b) - (i). With the lapse of time, two bands at  $212\text{ cm}^{-1}$  and at  $155\text{ cm}^{-1}$  appear and increase their intensities as shown in Fig. 1(c) - (i). These two bands do not exist in the spectrum of fresh sample, which is shown in Fig. 1(a). The spectrum in Fig. 1(i) is very much similar to that of  $\alpha$ -hydroquinone ( Fig. 1(j) ), and the sample which gave the spectrum in Fig. 1(i) is considered to contain a considerable amount of  $\alpha$ -hydroquinone produced by decomposition of  $\beta$ -hydroquinone clathrate of acetonitrile. Similar results were obtained for the crystal of  $\beta$ -hydroquinone clathrate of acetonitrile stored in a sample bottle. It was found that the above mentioned decomposition of  $\beta$ -hydroquinone clathrate of acetonitrile can be prevented by storing the sample in liquid acetonitrile.

References:

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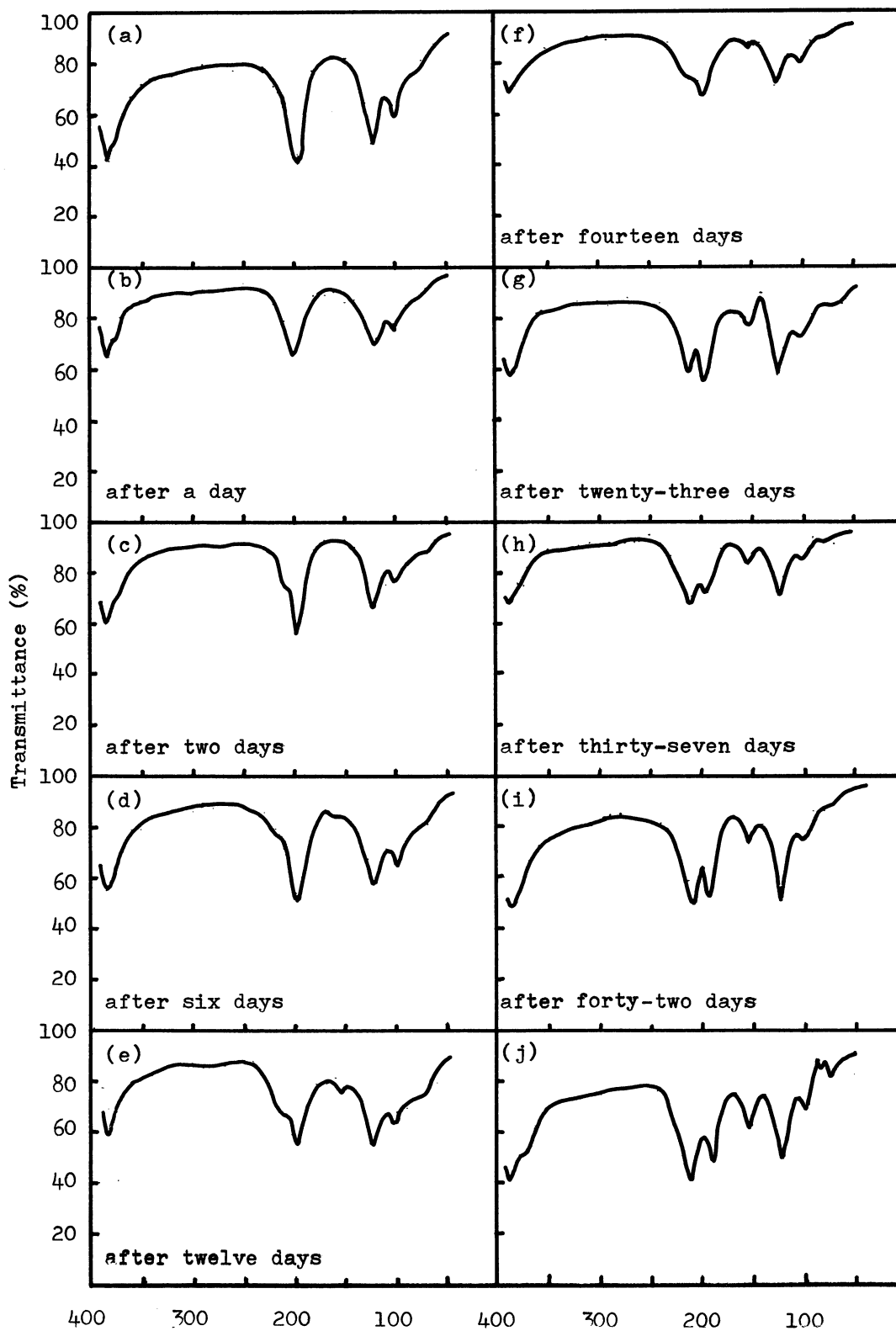


Fig. 1. Far-infrared spectra of  $\beta$ -hydroquinone clathrate of acetonitrile (a), its change with time (b) - (i) and far-infrared spectra of  $\alpha$ -hydroquinone (j).

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