


Object Number	K787	Description	Socketed bracket in silver with wood remains (part). Catalogue no. 685.
		Sample Description and location.	
		White fibrous material embedded in tip of wooden fragment. Looks like tissue paper.	



Figure 1. Sample K787-1 collection area.



Figure 2. Detail of K787-1 sample collection point showing embedded nature of fibrous material.

FTIR Analysis

Comments: Spectrum K787-1-1 (top, red) is a close spectral match for that of the cotton reference spectrum (bottom, blue). The white fibrous material could be a piece of deteriorated cotton cloth, or possibly a paper product embedded in the wooden fibres. The majority of cellulosic carbohydrates will exhibit a broad band from 3600–3100cm⁻¹ arising from O-H stretching in bound or absorbed water (Tipson 1968, Stuart 2007, Naumann *et al.* 2007, Bodirlau & Teaca 2009). A broad band relating to C-H stretching from aromatic hydrocarbons at 3100-3300 cm⁻¹ can be obscured or partially obscured by the broad O-H stretching band described previously (Tipson 1967). Additional peaks relating to the cellulose component of plant material include peaks for C-H stretching of methylene groups between 3000 and 2800cm⁻¹, C-H deformation in cellulose and hemicellulose at 1371cm⁻¹, C-H vibrations at 1319 cm⁻¹, an intense peak at about 1030cm⁻¹ relating to C-O bonding (this is typically a combined peak for cellulose and hemi-cellulose), and a shoulder at 897cm⁻¹ relating to C-H bending. Additional shoulders at 1155cm⁻¹ and 1105cm⁻¹ on the C-O band at about 1030cm⁻¹ relate to stretching and contraction (so called 'breathing') vibrations within the benzene rings, and glycosidic linkages between carbohydrate molecules respectively (Tipson 1968, Naumann *et al.* 2007, Bodirlau & Teaca 2009).

Representative Spectrum

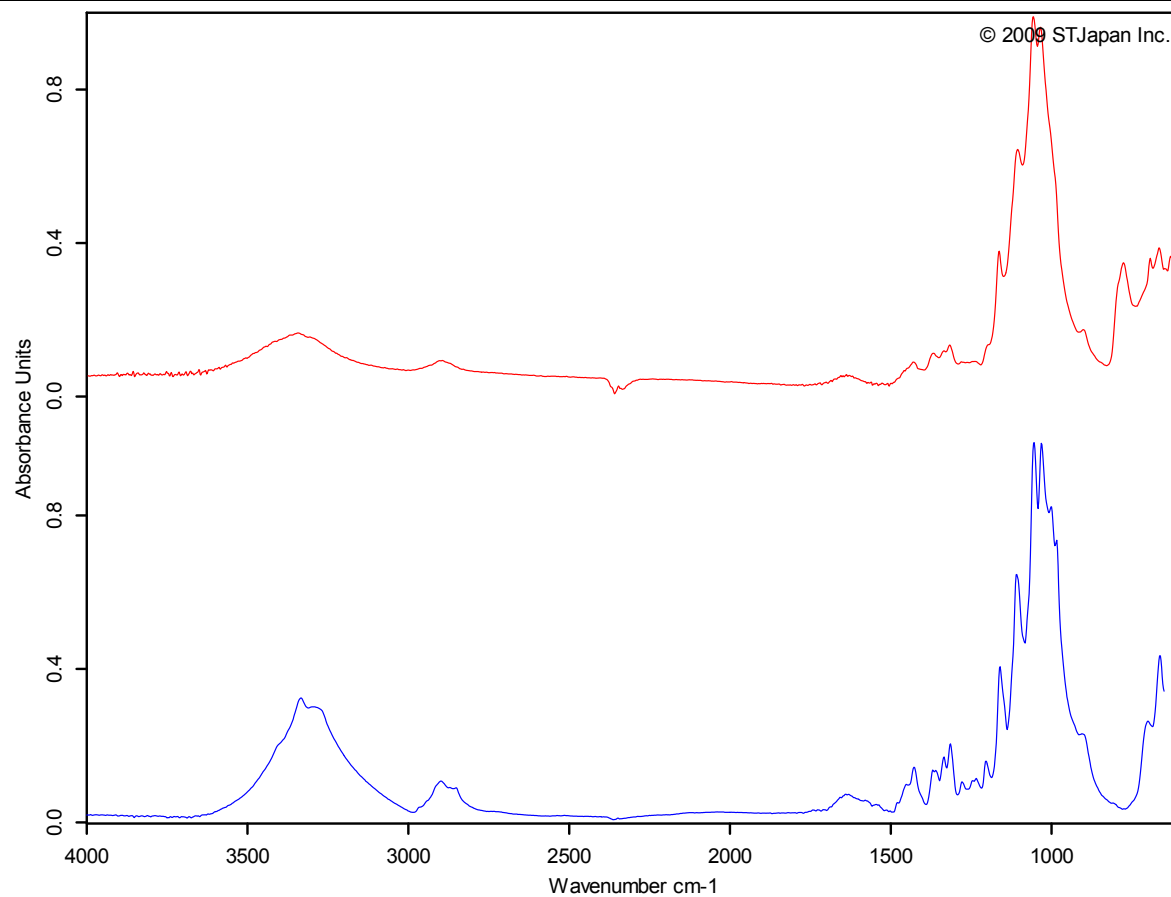


Figure 3. Top (red) spectrum for K787-1-1. Bottom (blue) Cotton lot2 reference spectrum, ST Japan 2009.