Fig. 2 — V versus t and α_s plots for samples A and B of arsenic sulphide

TABLE 1 — SURFACE AREA VALUES BY BET, t AND α_s METHODS

Degassing temp. (°C)	Specific surface area (m² g⁻¹)					
	SAMPLE A			SAMPLE B		
	S_{BET}	S_t	S_a	S_{BET}	S_t	S_a
27	42·0	42·7	44·2	113·2	109·5	114·8
60	40·7	41·3	42·5	108·9	107·6	114·8
110	40·7	41·8	44·2	108·9	109·5	114·8

The α_s plot is linear over the entire relative pressure range and passes through the origin. This indicates that the sample is non-porous or contains pores of width more than 200 Å (ref. 5). The t plot which also passes through the origin is linear up to a certain range only. At t values of 10 Å for sample A and 6 Å for sample B, the experimental curve deviates upwards from linearity indicating that more nitrogen is taken up than corresponding with multilayer adsorption. This indicates that the capillary condensation starts setting in at this point in the intermediate pores[6].

The agreement of surface area of the samples between t and α_s methods and BET method indicates that the former two methods can be used to analyse the adsorption data of the present sulphides.

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Photo-stabilization of Butyl Rubber in Solid State by Phenyl Allyl Mercury

RAMESH CHANDRA & HARI L. BHATNAGAR

Department of Applied Sciences & Humanities
Kurukshetra University, Kurukshetra

The incorporation of 0·5% PAM or more in the matrix of butyl rubber film irradiated by 366 nm exercises a protective influence on the photo-oxidative degradation of butyl rubber.

THE kinetics of photo-oxidative degradation of butyl rubber in the presence of oxygen and its photo-stabilization by the addition of 0·1% (wt/wt) phenyl allyl mercury [1,2] (PAM) were reported earlier[3]. In the present note, the physico-chemical studies have been conducted to find out an optimum limit of [PAM] which would impart the saturation photo-stabilization to butyl rubber in solid state.
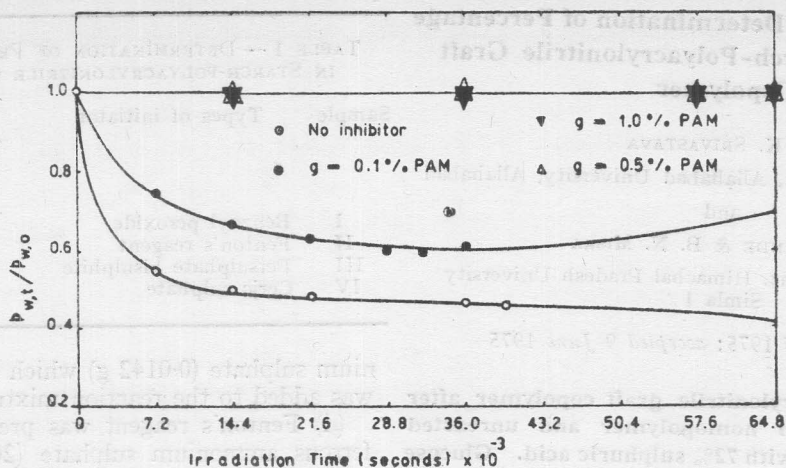
Fig. 1 — Variation of weight average degree of polymerization of butyl rubber versus irradiation time at 283°K [Light intensity flux = $1·68 \times 10^{-8}$ Einstein sec^{-1} cm^{-2}, Irradiation wavelength (λ) = 366 nm]
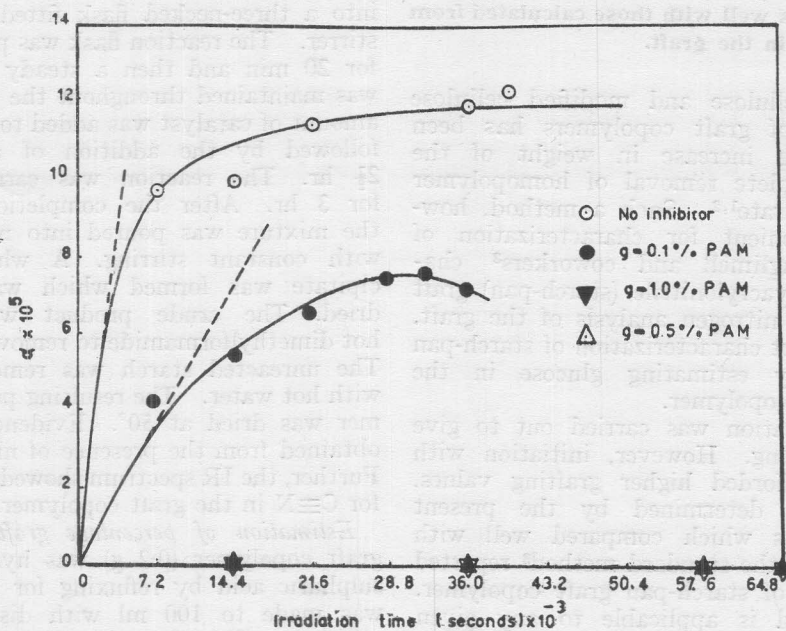

Fig. 2 — Variation of photo-degradation rate of butyl rubber (α) versus irradiation time at different [PAM] and 283°K [Light intensity flux = $1·68 \times 10^{-8}$ Einstein sec^{-1} cm^{-2}, Irradiation wavelength (λ) = 366 nm]

The preparation of butyl rubber films, the method of incorporation of [PAM] into the matrix of films, the procedures of photo-irradiation, the subsequent dissolution of films and the characterization of molecular weight have been described elsewhere[3].

The changes in the molecular weight as a function of [PAM] and time of irradiation were determined using light scattering technique.

Fig. 1 gives the values of the ratios of the weight average degree of polymerization ($p_{w,t}/p_{w,o}$) for butyl rubber with or without [PAM] versus the irradiation time at 283°K. Fig. 2, gives the variation of the degree of degradation per original chain length (α) with the time of irradiation.

The data plotted in Figs. 1 and 2 indicate that incorporation of 0·5% PAM or more in the matrix of butyl rubber film irradiated with $\lambda = 366$ nm exercises a protective influence on the photo-oxidative degradation of butyl rubber. These results are also supported by the values of the specific rate constant (k_1) at different concentrations of PAM (from 0·1 to 2·0%). The values of k_1 are negligible beyond 0·5% PAM.

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