

تأثيرات أشعة كاما على الخواص الفيزيائية للمطاط SBR (Styrene Butadiene Rubber)

() SBR
(255.08 Rad) (1.22Mev) (Co^{60})

Abstract

In this research some physical properties of (SBR) solutions in heptane have studied before and after irradiation γ -rays using the source () of average energy (1.22 Mev) with radiation dose of (255.08 Rad). The theological properties include viscosity were calculated and decrease of these values after radiation .

mechanical properties were studied by measuring the ultrasonic velocity for different concentrations and decrease in values of absorption coefficient of ultrasonic wave of different concentration .optical properties such as absorbance and refractive index have been measured and decrease of optical properties value after radiation .

()
(η_{sp})
:()

$$\eta_{sp} = \frac{\eta_s - \eta_o}{\eta_o} \dots\dots\dots (1-1)$$

(α_{vis})

:(Blitz, 1967; Hassun, 1988)

$$\alpha_{vis} = \frac{8\pi^2 f^2 \eta_s}{3\rho V^3} \dots\dots\dots (2-1)$$

(Beer-Lambert law) -

:(Daniels, 1980)

$$\log \frac{I}{I_0} = \alpha_{op} CL = A \dots \dots \dots (3-1)$$

:

. :C . Absorbance : A
: L . : α_{op}
()

:

$$\alpha_{op} = \frac{slop}{L} \dots \dots \dots (4-1)$$

(R)

:(Fowels ,1975)

$$R = \left[\frac{n-1}{n+1} \right]^2 \dots \dots \dots (5-1)$$

(-)

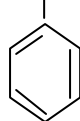
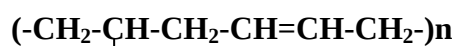
(SBR)

(/ ,) ()

(-)

%

. 25C°



(SBR)

(-)

/		/			%	
,	, - ,					

(-)

			g/ml			$CP(\eta_0)$
	C_7H_{16}	,	,	,	,	,

$(0.1 - 2.5\% \frac{g}{ml})$

(SBR)

(Magnetic stirrer)

$.25C^\circ$

(1.22 Mev)

(CO^{60})

$(9.11 \frac{Rad}{h})$

(10 Cm)

(100 Cm^2)

$. (255.08 \text{ Rad})$

(ostwold viscometer)

$. 25C^\circ$

(PHYWE)

(KHZ)

(PHYWE)

.

(Spectrophotometer uv-160 series)

(200-1100 nm)

$. (Shimadzu)$

SBR

(Abb's refractometer)

(, - ,)

$. 25C^\circ$

(a-1-1)

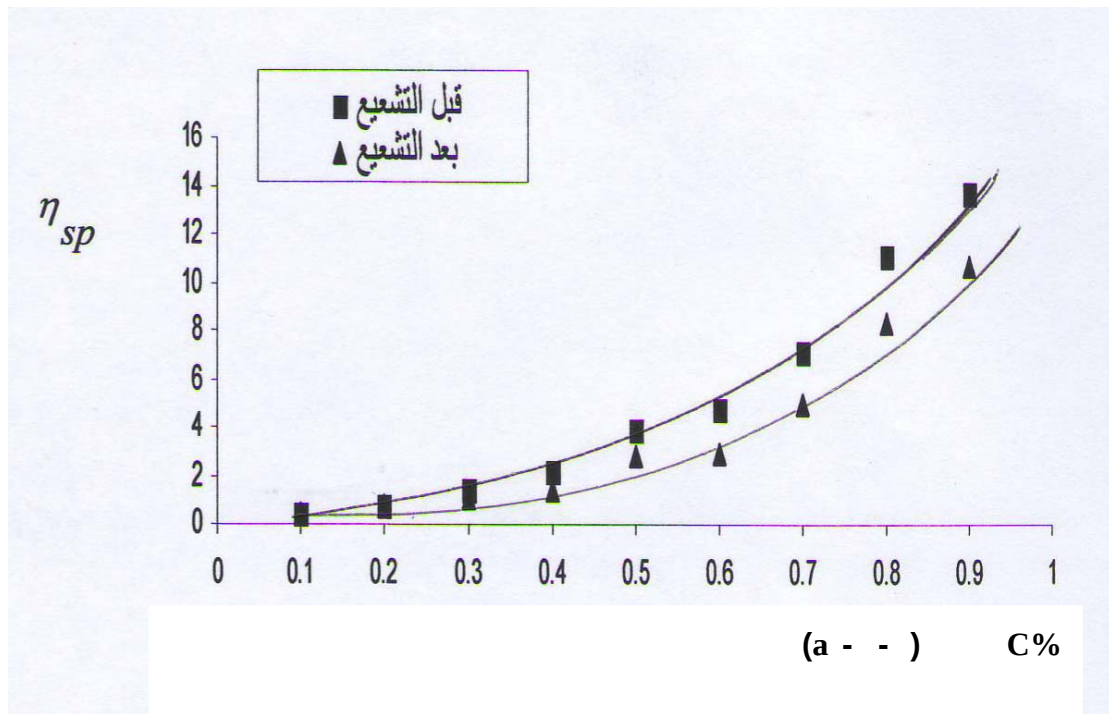
(-)

(SBR)

$. ()$

(a - -)

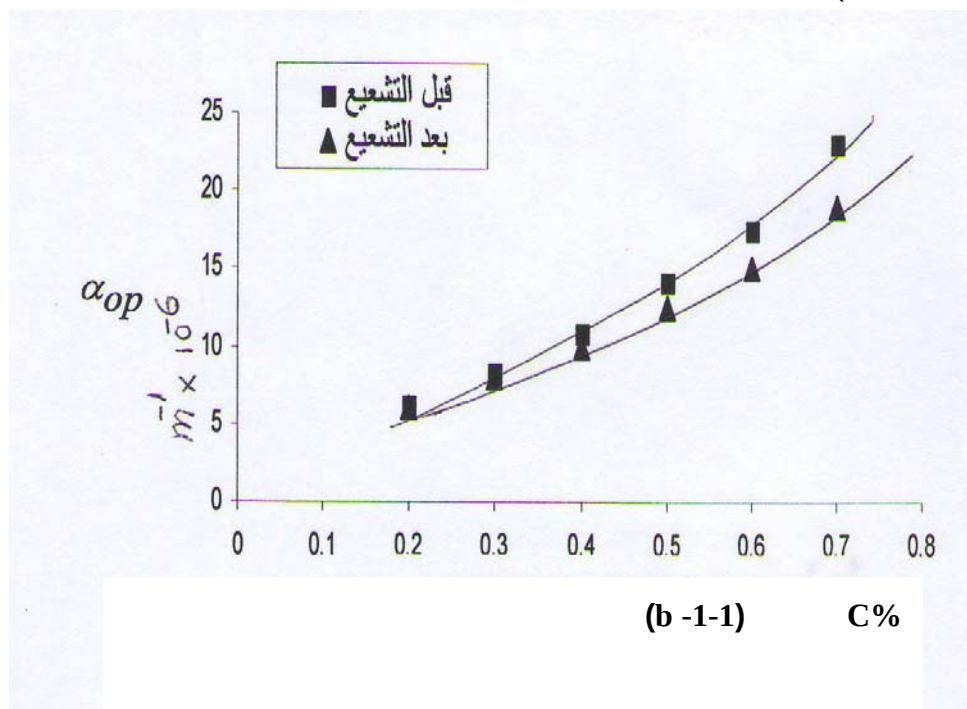
$. ()$



(b-1-1) (-)

SBR

. ()



(A)

(a-2-1)

(-)

(α_{op})

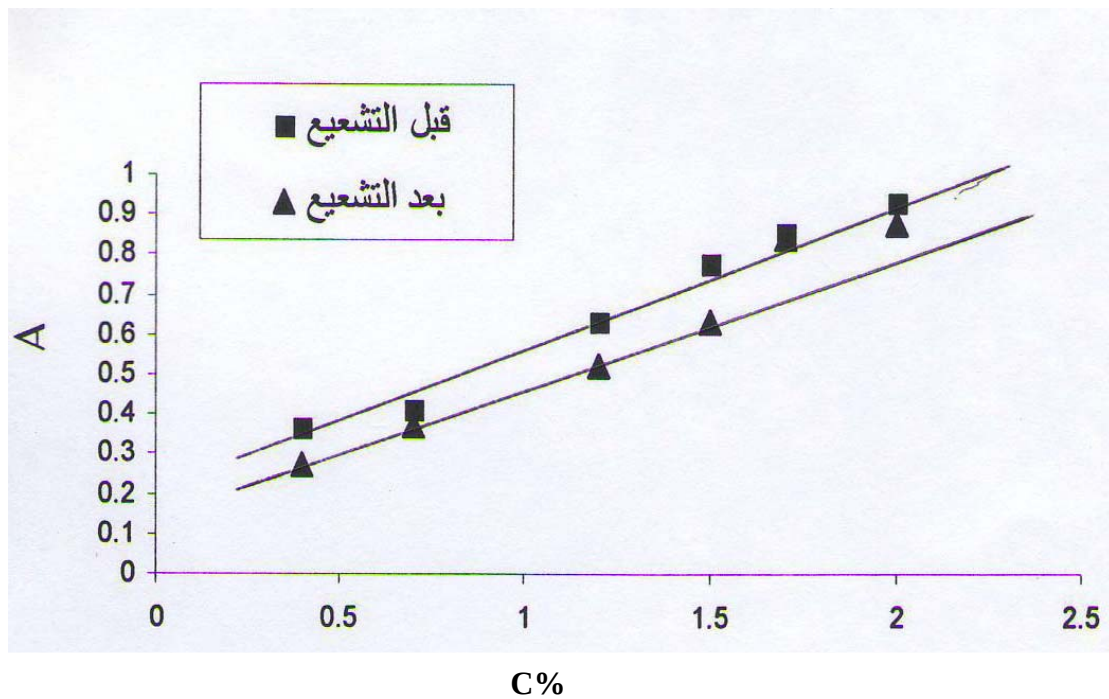
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()

(/ ,)

(/ ,)

(α_{op})



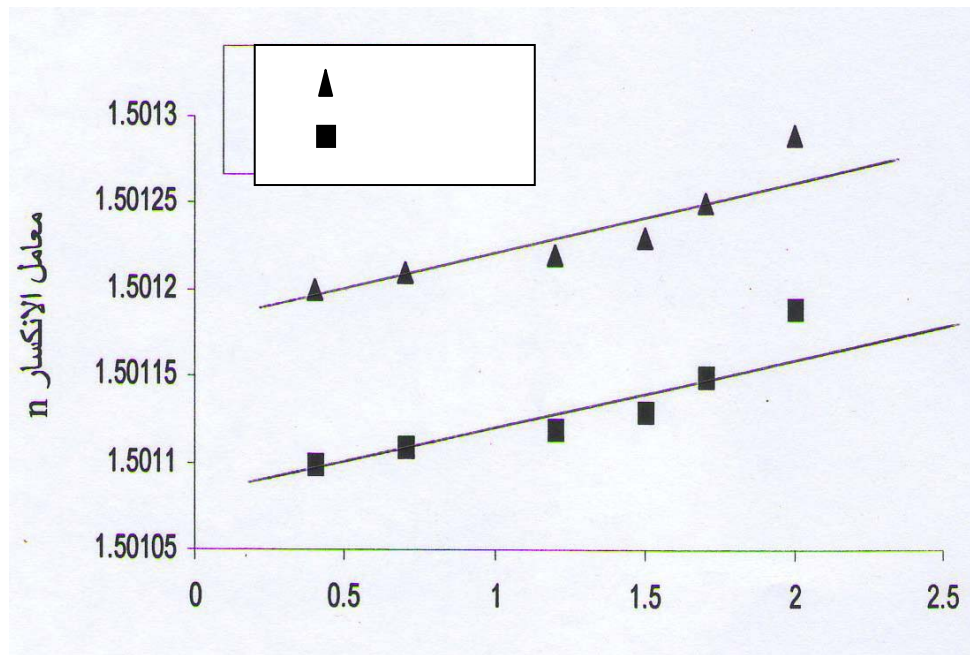
(a - -)

SBR

(SBR)

(n)

(b-2-1)



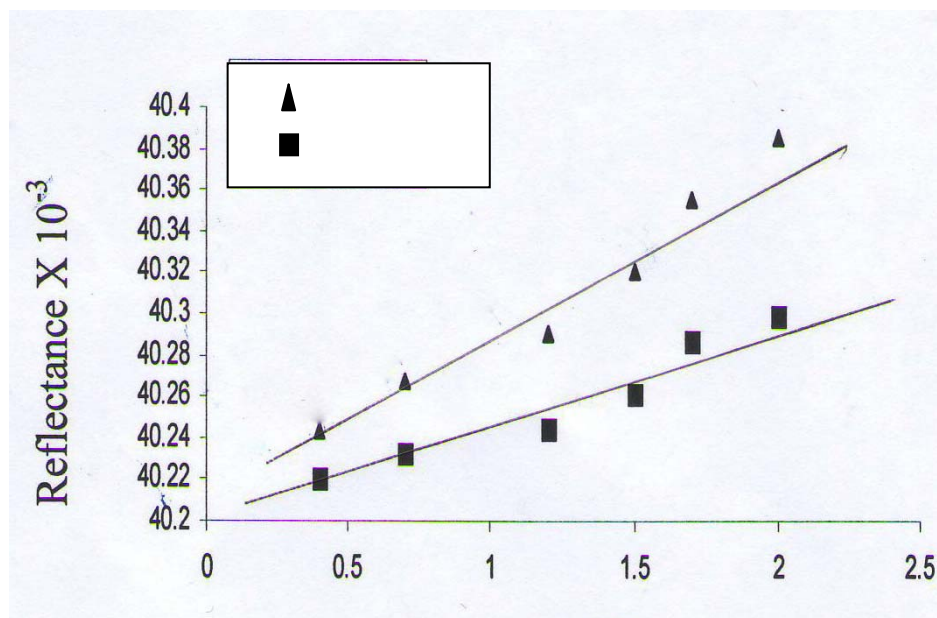
$C\%$

(b - -)

(R)

(c - 2 - 1)

(-)



$C\%$

SBR

(c - -)

SBR (CO^{60})

— .() .
 — ()
 — .
 — (()) .
 SBR ()
 .()
 .()

Blitz , J. (1967). Fundamental of ultrasonic , second edition , Butter worthies London.
 Daniels , A.R. (1980). Physical chemistry , fifth Edition , John Wiley and sons Inc 1980 .
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 Hassun , S.K. (1988). Acta PDlymerical J.39,11,664.