PLAINTIFF'S EXHIBIT
UC-3962

UNION CARBIDE

Calidria ASBESTOS

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PLASTICIZER VISCOSITY CONTROL WITH CALIDRIA ASBESTOS RG-244 & RG-144

RG-244 is superior to other thickening agents tested in a series of different types of plasticizers. Its efficiency is higher and its performance per dollar is better than Cab-O-Sil and Thixcin R. RG-144 provides higher viscosities per dollar, but it contributes a greenish color and a somewhat grainy texture.

Viscosity data are reported for RG-244 and RG-144 in nine plasticizers. A typical curve is presented in Figure 1 for viscosity variation with speed of measurement (shear rate) on a Brookfield LV viscometer. The excellent performance of RG-244 and RG-144 in DOP is shown as compared to Cab-O-Sil and Thixcin R in Figure 2.

The data presented are potentially most useful in vinyl plastisols or other systems wherein a plasticizer represents a major portion of a liquid system. Since aesthetics are usually involved in these applications, RG-244 is probably of greatest interest since it imparts less color. Because of its greater thickening efficiency, it also allows minimal mineral addition.

Mineral additives were incorporated into each plasticizer by hand stirring, followed by 15 minutes on a Cowles dissolver using a 3" impeller at 3000 rpm. Samples of 700 g. of plasticizer were mixed with the required additives in a one-quart container. During mixing, temperature rises of from 10 to 30°C were noted.

Samples were cooled to 25°C and viscosities measured 1/2 to 1 hour after mixing on a Brookfield LV viscometer at 2, 6, 20, and 60 rpm. Viscometer spindles were selected to obtain midscale readings.

Union Carbide trial exhibit UC-3962: Calidria Asbestos Technical Report: Plasticizer Viscosity Control with RG-244...
ACL Doc 18595 · Page 1 of 6
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TABLE I

RG-244 IN PLASTICIZERS

Plasticizer	RG-244, % by Wt.	Viscosity, cps (@ rpm indicated) 2	6	20	60
FLEXOL DOP	0	-	55	-	-
	1	16,000	7,400	1,500	1,100
	2	41,000	17,000	9,400	5,700
	4	260,000	80,000	43,000	O.S.*
FLEXOL 1010	0	-	75	-	-
	1	9,600	5,400	1,600	940
	2	44,000	14,500	8,700	5,200
	4	245,000	50,000	41,000	O.S.
FLEXOL EPO	0	-	600	-	-
	1	900	800	750	700
	2	3,500	3,000	2,500	2,300
	4	105,000	35,000	32,000	O.S.
FLEXOL TCP	0	-	125	-	-
	1	10,000	6,400	2,000	1,300
	2	64,000	28,000	11,400	5,500
	4	370,000	O.S.	64,000	O.S.
FLEXOL TOF	0	-	25	-	-
	1	225	125	75	55
	2	2,000	1,350	475	300
	4	32,000	12,000	5,500	3,600
FLEXOL R2H	0	-	7,500	-	-
	1	14,000	14,000	12,000	O.S.
	2	19,000	18,000	16,000	O.S.
	4	140,000	O.S.	56,000	O.S.
FLEXOL 3GO	0	-	20	-	-
	1	7,000	6,000	1,300	1,000
	2	30,000	17,000	5,100	2,300
	4	105,000	52,000	12,500	O.S.
Santicizer 141	0	-	25	-	-
	1	8,300	5,000	1,900	1,000
	2	32,000	14,000	7,200	2,100
	4	115,000	35,000	16,000	O.S.

*O.S. = Off Scale

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TABLE II

RG-144 IN PLASTICIZERS

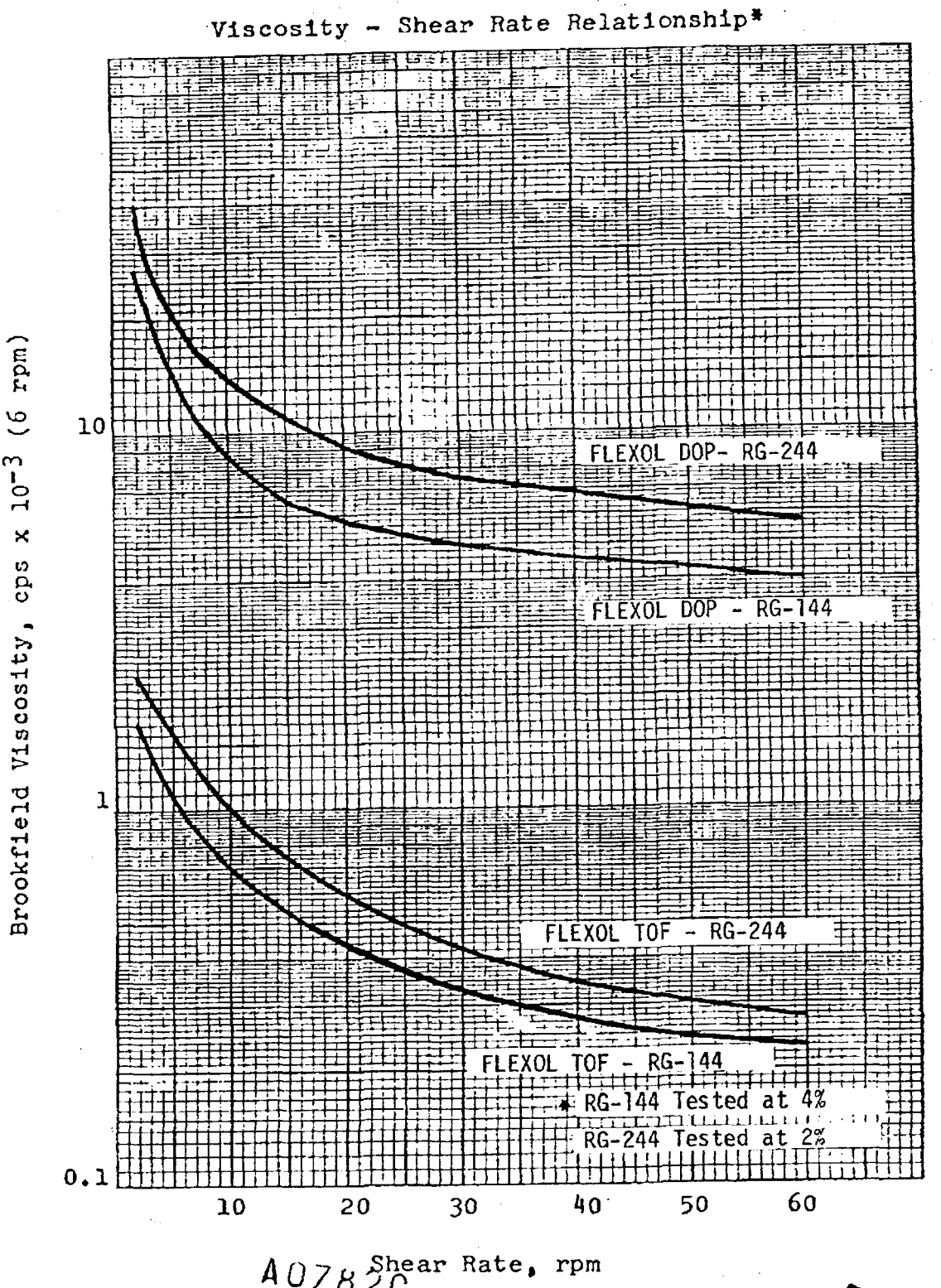
Plasticizer	RG-144, % by Wt.	Viscosity, cps (@ rpm indicated) 2	6	20	60
FLEXOL DOP	0	-	55	-	-
	1	2,000	950	480	270
	2	10,500	4,400	1,800	1,000
	4	28,000	10,000	7,000	4,000
	8	82,000	29,000	18,000	7,300
FLEXOL 1010	0	-	75	-	-
	1	400	275	200	160
	2	5,400	2,500	960	580
	4	47,500	23,000	9,200	5,500
	8	130,000	50,000	25,000	O.S.*
FLEXOL EPO	0	-	600	-	-
	1	800	800	750	640
	2	1,100	1,200	1,100	1,100
	4	3,800	3,000	2,300	2,000
	8	32,000	20,000	9,400	6,600
FLEXOL TCP	0	-	125	-	-
	1	425	300	240	200
	2	7,000	4,800	1,500	1,000
	4	63,000	31,500	9,000	6,300
	8	172,000	86,000	30,000	O.S.
FLEXOL TOF	0	-	25	-	-
	1	50	25	22	22
	2	100	75	55	35
	4	1,700	900	450	230
	8	25,000	11,500	4,600	1,800
FLEXOL R2H	0	-	7,500	-	-
	1	11,000	10,000	9,000	9,000
	2	12,000	11,000	9,400	8,600
	4	35,000	35,000	24,000	O.S.
	8	1,150,000	O.S.	142,000	O.S.
FLEXOL 3GO	0	-	20	-	-
	1	2,000	775	520	275
	2	6,000	5,000	1,500	1,100
	4	10,000	7,500	4,100	1,500
	8	36,000	22,000	9,600	2,500
Santicizer 141	0	-	25	-	-
	1	400	200	120	75
	2	6,400	3,000	1,300	800
	4	10,000	9,500	5,800	2,700
	8	56,000	24,000	16,000	4,400
Santicizer 160	0	-	75	-	-
	1	450	275	160	110
	2	5,000	2,100	840	440
	4	50,000	24,500	6,000	4,100
	8	360,000	O.S.*	58,000	O.S.

*O.S. = Off Scale

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FIGURE 1



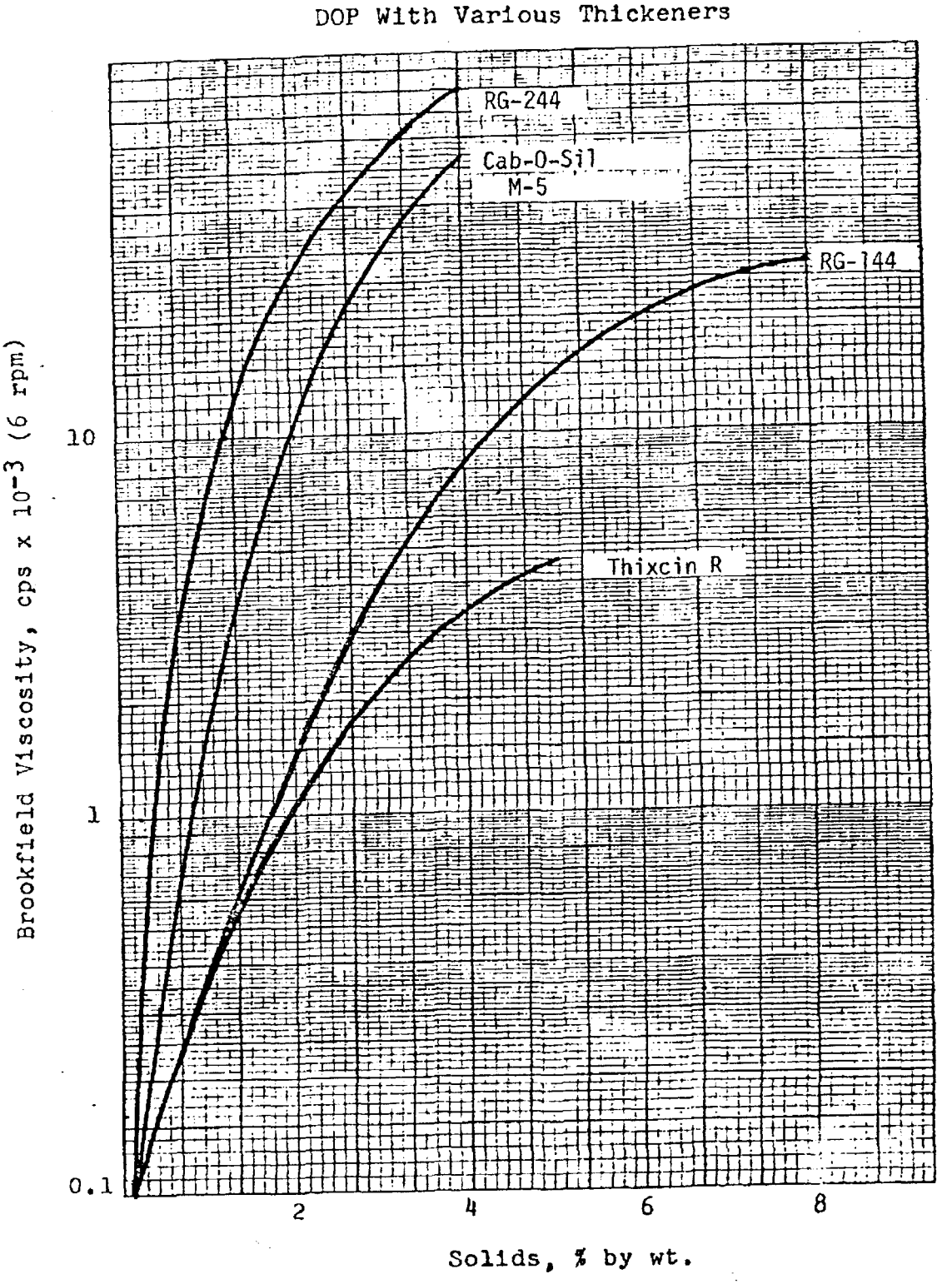
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FIGURE 2



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