ADDENDUM TO THE PAPER 'INDIAN COAL TAR'.

(*This Journal*, 1933, 16A, 185-192).

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An examination of a sample of coke oven tar sent at our request from Jamshedpur had shown (*loc. cit.*, p. 187) that it contained a high percentage of pitch and hardly any low boiling constituents. It was stated to be a sample of thin tar but the results obtained showed that it was inferior to coke oven tars of good quality. Recently, the Tata Iron and Steel Company, Limited, Jamshedpur, one of the biggest manufacturers of tar in India and who produce about 2,000 tons per month, pointed out that the bulk of the tar produced by them was of a better quality. The analytical values for the tar sent to us have been given in Table I side by side with the maximum and minimum values obtained in their own laboratories at Jamshedpur during examination of numerous samples.

The constants of the sample examined at Bangalore are more in agreement with the minimum values for dehydrated tar. The sample sent here as thin tar appears to have really been a sample of dehydrated tar.

Fresh samples of their thin and dehydrated tars received here recently, have now been analysed, identical methods being employed (*loc. cit.*, p. 186) and the results for the former recorded in Table II side by side with average figures obtained for coke oven tar from Koppers ovens (Porter, *Coal Carbonisation*, 1924, p. 323). It is found that the data of fractionation of the sample of thin tar are roughly comparable with the average figures for coke oven tar.

The fresh sample of dehydrated tar from Jamshedpur has also been analysed and the results recorded in Table III. The British Road Board has issued its specifications for two grades of road tar (Table III) which have been approved by B. E. S. A. in 1928, No. I to be used for surface dressings to ordinary roads whether previously tarred or not and No. II for making tar macadam for the laying down of new road surfaces. The sample of dehydrated tar from Jamshedpur conforms very well to specifications No. II and even to tar No. I, except for a trifling increase in specific gravity.

In view of the fresh samples proving to be different from the old one which we expected to be a representative sample, the remarks made in our previous paper, bearing a sense of generality, can now be regarded as not holding good and modified as follows:—

TABLE I.

Thin coal tar			Sample sent as thin tar and examined at Bangalore	Dehydrated tar		
	Maximum	Minimum			Maximum	Minimum
$d_{15.5}^{15.5}$	1.21	1.18	1.2445	$d_{15.5}^{15.5}$	1.275	1.216
Free carbon in tar	22.08	9.51	17·4	Free carbon in tar	24.20	17.77
Water (ammoniacal liquor -110°)	7.80	2.50	..	Distillate up to 200°	4.70	0.15
Distillate up to 110°	6.33	0.52	nil	,, between (200-270°)	12.70	4.21
,, between (170-230°)	10.05	2.71	nil	,, ,, (270-300°)	16.39	2.60
,, ,, (230-270°)	7.09	2 10	8.2			
,, (above 270°)	25.70	16.37	10.8			
Pitch	59.52	40.86	80.0			

TABLE II.

	Thin coal tar from Jamshedpur	Coke oven tar (Koppers ovens)
$d^{15.5}_{15.5}$	1.2169	1.156 (at 15°)
Free carbon in tar	8.96	4.25
Water	1.95	1.25
Distillate up to 110°	2.5	—
„ between (110–170°)	0.2	0.20
„ „ (170–230°) . ..	5.7	9.48
„ „ (230–270°) . ..	7.6	10.08
„ „ (270–350°)	17.6	22.71
„ above 350°	5.2	—
Pitch	59.2	56 28
Loss during distillation	2.0	—

TABLE III.

	Dehydrated tar from Jamshedpur	British Road Tar Specifications	
		No. I	No. II
$d^{15.5}_{15.5}$	1.2381	1.14– 1.225	1.15– 1.24
Phenols in tar per cent.	0.5	0.0 – 5.0	0.0 – 4.0
Water or ammoniacal liquor .. .	0.1	0.0 – 0.5	0.0 – 0 5
Distillate up to 200°	0.4	0.0 – 1 0	0.0 – 1.0
„ between (200–270°)	14.7	9.5 –21.0	8.0 –16.0
„ „ (270–300°)	4.6	3.5 –12.0	3.5 –12.0
Naphthalene	7.7	0.0 – 6.0	0.0 – 5.0
Free Carbon	14.9	0.0 –20.0	6.0 –21.0

P. 185, para 2.—

Substitute 'The gas tars examined are of normal quality and comparable with tars produced in a similar way in Europe, the coke oven tar from Jamshedpur being an exception.'

by 'The gas tars and the thin coke oven tar examined are of normal quality and comparable with tars produced in a similar way in Europe.'

P. 188, para 2.—

Substitute 'Coke oven tar from Jamshedpur does not contain any of the lower boiling hydrocarbons or the lower phenols. The product does not compare well with those obtained from any of the different kinds of coke ovens.'

by 'The sample of thin coal tar from Jamshedpur coke ovens contains an appreciable quantity, boiling below 170° and is similar in this respect to tars produced elsewhere. According to Cox (*Allen's Commercial Organic Analysis*, 5th edition, 1925, 3, 33) some coke oven tars are poor in light oils but rich in both naphthalene and anthracene. It is of interest that in recent years improved yields of light oil varying between 3–4 per cent. have been obtained at coke ovens by improved apparatus and careful attention to operating conditions (Porter, *ibid.*, p. 334).'

P. 192, Summary 2.—

Substitute 'The coke oven tar of Jamshedpur was of poor quality and contained no light oil, 80 per cent. being pitch.'

by 'The sample of thin coal tar, stated to represent the entire bulk of the tar produced in the works at Jamshedpur is a coke oven tar of normal quality.'

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