

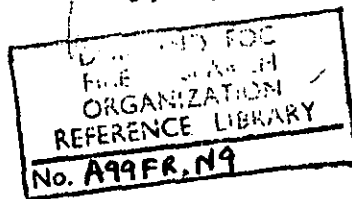
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DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH AND FIRE OFFICES' COMMITTEE
JOINT FIRE RESEARCH ORGANIZATION

CALORIFIC VALUES OF RUBBER

by

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Summary

The calorific values of three types of rubber of known origins, have been determined experimentally. The calorific value of crude rubber is approximately that of isoprene, its principal decomposition product.

Introduction and experimental

Published figures for the calorific value of rubber vary from 6,030 B.Th.U./lb⁽¹⁾ to 18,500 B.Th.U./lb; it is not always clear whether the data refer to the crude rubber or manufactured products. It was therefore thought desirable to determine the calorific values of samples of rubber whose history was known. The measurements were made in a standard bomb calorimeter. The results are given below.

Calorific values of rubber

Sample	Ash	Calorific value	
		cals/gram	B.Th.U./lb
Crude crepe rubber ^A	0.1%	10,678	19,220
Sponge rubber carpet underlay	9.0%	7,830	14,100
Rubber from motor car tyre	1.2%	7,323	13,180

The high calorific value of the crude rubber is that to be expected if it is assumed that rubber is a hydrocarbon. The value is very near to the net heat of combustion of gaseous isoprene (19,003 B.Th.U./lb)⁽²⁾ which is the principal product of the thermal decomposition of rubber.

References

- (1) Handbook of Chemistry and Physics 30th Edn. 1947. p1511.
- (2) American Petroleum Institute Research Project 44. Table 11 n. Bur. Standards. 1949.