

26978 on the Machinery of the *Hoboken* Vessel built at *Hoboken* By whom *Antwerp Co. Ltd.*  
 Tonnage Gross *1862* Net *1116*

TELEGRAPHIC ADDRESS:  
 "LABORATORY," GLASGOW  
 CODE A. B. C. 5TH EDITION  
 TELEPHONE: 6698 CENTRAL  
 909 LANGSIDE

OFFICE AND LABORATORIES:

Douglas A. MacCallum, F.I.C., F.C.S.,

389-391-405-406 Central Chambers, 93 Hope Street,

Glasgow, 6th. December 19 37.

CONSULTING CHEMIST AND METALLURGIST  
 CHEMICAL ENGINEER

Fellow of Institute of Chemistry  
 Fellow of Chemical Society  
 Formerly Chief Chemist, Steel Co. of Scotland, Ltd.  
 Vice-President West of Scotland Iron and Steel Institute  
 Member Society of Chemical Industry  
 Member American Society for Testing Materials  
 Member the Faraday Society

Soda used and deposit from Boiler  
 of S/S "Irene Maria" at Ghent 10/11/37.

b. Nos. 1034-5/37.

	Soda used in Boiler	Deposit from Butt Strap S.B.
Moisture	13.78 %	.44 %
Insoluble residue	.02 "	.15 "
Silica	.01 "	
Sodium Chloride	9.64 "	
Sodium Sulphate	.14 "	
Sodium Carbonate	74.39 "	
Sodium Oxide	2.14 "	12.39 "
Iron Oxide and Alumina		.92 "
Lime		23.09 "
Sulphuric Anhydride		1.15 "
Chlorine		19.75 "
Sodium Oxide combined		42.11 "
Sodium Oxide to balance		
	<u>100.12</u>	<u>100.00</u>

It is difficult as well as uncertain to attempt to come to a definite conclusion from the foregoing figures, as to their effect on Boiler Steel.

The total deposit from the Butt Strap only weighed about 1 gramme. This appears to consist of Sodium Sulphate. The Sulphate may come either from the Boiler water or from the Fuel, with a large quantity of free Sodium Hydroxide and .15% Silica - to .265% Sodium Silicate. Sodium Hydroxide containing .15 to .30% Sodium Silicate has been found to produce definite intercrystalline cracking in Boiler Steel and this may well be the cause of the steel cracking, as reported in this Boiler.

Samples of the actual Boiler Water and a sample of the Steel plate would be helpful in coming to some conclusion in this Case.

*Douglas A. MacCallum, F.I.C., F.C.S.*

Lloyds Register of Shipping,  
 95 Bothwell Street,  
 Glasgow, C.2



© 2019

Lloyd's Register  
 Foundation