

Report of the Ore Dressing and Metallurgical Laboratories.

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The Elimination of Iron from the East Templeton Sandstone

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(2) Purpose of Experimental Tests. Due to the iron content of the East Templeton sandstone being about 0.15 to 0.30% Fe_2O_3 , it is unsuited for the making of clear glass. For this purpose the sand should be ^{which} 0.07% Fe_2O_3 or less. A method of reducing the iron content to this limit was sought. ~~The experimental work was carried out for the Canada Glass Products Ltd., Ottawa, Ont., and all samples of sand used came from their~~ ^{workings at East Templeton.}
(1) Characteristics of the Sandstone. The sandstone when crushed to its natural grain consists of rounded quartz particles grading from 10 mesh down. Some free pyrite is present and some pyrite is attached to the quartz grains. A small number of rusty particles are present, these are weathered pyrite. A close examination shows that the pyrite formed after the deposition of the sand and filled ~~up~~ ^{voids} some of the spaces between the grains. On crushing, some of this pyrite breaks free and some remains attached to the ^{quartz} grains.

Roasting and Magnetic Separation.

Small samples of crushed and washed sandstone were roasted in a gas fired muffle furnace to a dull red heat to make the pyrite in the sandstone magnetic. After roasting the samples were allowed to cool and ^{then} run through an Ulbrich magnetic separator using as strong a magnetic

field as possible. An analysis of the non-magnetic products shows that the iron content has been reduced to about 0.06% Fe_2O_3 . The roasted samples are faint pink in color. The following table shows the results obtained in different tests, -

Test No.	Heads		Non-Magnetic
	% SiO_2	% Fe_2O_3	Fe_2O_3
1	99.40	0.29	0.00076
2	98.92	0.15	0.06078
3	99.20	0.21	0.00062
4	98.66	0.20	0.0005
5			0.052

The above tests made on five different samples of (East Templeton) ^{the} sandstone show that roasting and high intensity magnetic separation will reduce the iron content to the desired limit, but it is doubtful if the method is cheap enough to allow its use on a material of such low value per ton as glass sand.

Rotation.