

## TRIPLITE FROM LA RIOJA PROVINCE, ARGENTINA

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This mineral was collected by E. F. Burchard of the U. S. Geological Survey, in October of 1925, while studying the iron ore resources of Argentina. It was collected from a stock pile consisting of several tons of this crystalline mineral near the railroad station of Salado, in the province of La Rioja. Dr. Jose M. Sobral, Director of the Bureau of Mines, Geology and Hydrology of the Argentina Republic, who was present at the time endeavored to ascertain the exact location of the deposit but there was reluctance on the part of the shippers to divulge the information so the closest approximation as given by Dr. Sobral is the Sierra de Zapata, Catamarca Province, Argentina.

This triplite has a brilliant resinous luster, a reddish brown color and is free from both mineral inclusions and alteration products. There is a rather prominent zoned structure present and these zones are composed of triplite which has a duller luster and a more pronounced brown color without the reddish tint. When the mineral is powdered and examined under the microscope these different bands are indistinguishable from each other. This triplite does not possess any prominent cleavage although this mineral is described in texts as having two cleavages normal to each other with one much more distinct than the other. The fracture is conchoidal. It has a hardness of 4.5 and a specific gravity equal to 3.87.

The following analysis was made by the author when he was a member of the U. S. Geological Survey.

### ANALYSIS OF TRIPLITE

	Percentages	Ratios
Insol.	0.28	
MnO	34.84	.4912
FeO	23.54	.3276
CaO	3.48	.0620
MgO	trace	
Na <sub>2</sub> O	0.27	.0043
K <sub>2</sub> O	0.33	.0035
P <sub>2</sub> O <sub>5</sub>	31.50	.2205
F <sub>2</sub>	6.41	.3371
Cl	trace	
H <sub>2</sub> O	1.58	.0877
	<hr style="width: 50%; margin: 0 auto;"/> 102.23	
	2.69 F <sub>2</sub> correction	
	99.54	

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The similarity to the triplite formula can be seen more easily if the above analysis is recalculated and expressed as follows:

RECALCULATED TRIPLITE ANALYSIS					
FeO	23.54	.3276	} 2.85 or 3		RO
MnO	17.01	.2398			
CaO	3.48	.0620			
P <sub>2</sub> O <sub>5</sub>	31.50	.2205	1	1	P <sub>2</sub> O <sub>5</sub>
MnF <sub>2</sub>	15.45	.1673	} 1.15		1 MnF <sub>2</sub> (OH) <sub>2</sub>
MnO (H <sub>2</sub> O)	7.81	.0878			
98.79					

Assuming that there is complete isomorphism between the MnF<sub>2</sub> and MnO (H<sub>2</sub>O) molecules, this specimen is an intermediate member of the series. The ratios between the MnF<sub>2</sub> and MnO (H<sub>2</sub>O) is almost 2:1 respectively.

The optical properties as determined by C. S. Ross are:

$\alpha = 1.675$ ,  $\beta = 1.683$ ,  $\gamma = 1.692$ ;  $\gamma - \alpha = .017$ ;  
 sign +; 2V about 80; dispersion  $\rho > v$ . Pleochroism, expressed in color values of Ridgway's scale are: X = 17'0 - YG antimony yellow, 2 = 21'0 - YYd colonial buff. Absorption X > Y > Z.

It is unfortunate that Mr. Burchard was unable to visit this deposit and furnish a description of its occurrence because any locality which can supply several tons of such fine triplite must be unusual.