MASSICOT AND LITHARGE, THE TWO MODIFICATIONS OF LEAD MONOXIDE[1]

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WHILE measuring the optical properties of natural "massicot" it was noticed that the plates are made up of two minerals with distinct optical properties, which correspond to those of the two modifications of artificial lead monoxide. The centers of the plates are like the artificial yellow, orthorhombic modification (litharge), while the borders are like the artificial red, tetragonal one. It is proposed that the name *massicot* be confined to the tetragonal modification, and that the name *litharge* be applied to the orthorhombic modification, now recognized for the first time as a distinct mineral species.

Specimens from Austria and from Kern and San Bernardino counties, California, as well as both artificial forms were carefully examined and in all of the natural crystals the central portion was found to be litharge and the border massicot. It is believed that the massicot is an inversion product of the litharge.

In all cases the natural crystals are very similar and only the material from Cucamongo Peak, San Bernardino County, California, will be described.

It is in brownish-orange-red scales up to 1 millimeter across, very soft, and made up of litharge and massicot in about equal amounts, the latter forming the borders of the plates.

Under the microscope the litharge is nearly colorless and lies on plates sensibly normal to X (possibly Y) and is biaxial,+. The index of refraction, $\beta = 2.61 \pm .04$; the birefringence is very strong.

The massicot is yellow-orange in section, nearly or quite uniaxial, optically −, and has the optic axis normal to the plates. Its index of refraction $\omega = 2.64 \pm .02$; the birefringence is very strong.

For comparison the properties of the natural and artificial forms are given in table 1.

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TABLE 1

	Crystal system	*Habit*	*Cleavage*	*Optical character*	*Optical orientation*	*Index of refraction*	*Birefringence*	*Sp. gr.*
Litharge	Orth.?	Tablets		Biaxial +	X (possibly Y) normal to plates	2.61[a]	Very strong	
Artificial yellow modification (litharge)[b]	Orth.?	Tablets (100)	(001) Perfect	Biaxial +	Y (?) normal to cleav.	2.61	Very strong	9.290
Massicot	Tet.?	Tablets (001)		Uniaxial −		2.64[a]	Very strong	
Artificial red modification[b]	Tet.	Tablets (001)	(110)	Uniaxial −				9.125

[a] The value of n, 1.735, given for massicot by Scott in *Min. Mag.* **17**, 143, 1914, is obviously in error. A lead mineral with the specific gravity of massicot and so low an index of refraction would be very remarkable.

[b] See Groth, *Chem. Krystallographie.* I, 76, 1906.

NOTE ON THE NOMENCLATURE OF THE LEAD MONOXIDE MINERALS. EDGAR T. WHERRY.—The principle of making mineral names (except those like quartz, which have great antiquity) end uniformly in *ite* has for many years dominated American mineralogical nomenclature, and seems worth applying to all new or reëstablished species, unless some very cogent reason for exception exists. "Massicot" and "litharge" as such are chemists' names for artificial products; but both admit of adding the mineralogical termination without essential change. *Massicotite* was indeed proposed by D'Achiardi in 1883; and it is now recommended that the form of lead monoxide corresponding to artificial litharge, above shown by Mr. Larsen to deserve separate recognition as a mineral species, be known to mineralogists as *lithargite*.