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Soviet-era science, translated into English

# CHEMISTRY

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1963

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## Abstract

## Full Text

# CHEMISTRY

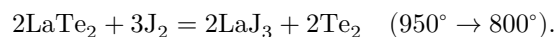
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## LANTHANUM DITELLURIDE $\text{LaTe}_2$

(Presented by Academician I. V. Tananaev, 22 VII 1963)

In the group of rare-earth metal chalcogenides of the  $\text{MeX}_2$  type, the ditellurides are the least studied. In paper <sup>(1)</sup> there is information on the formation of  $\text{LaTe}_2$  single crystals in the process of a transport reaction of  $\text{La}_2\text{Te}_3$  with iodine.

To obtain single crystals, we used a chemical transport reaction, using powdered lanthanum ditelluride  $\text{LaTe}_2$  as the starting substance,



The work was carried out by the diffusion method; the initial concentration of the transport agent was  $5 \text{ mg/cm}^3$ ; the duration of the experiment was 100 hours.

$\text{LaTe}_2$  single crystals of average dimensions  $1 \times 2 \times 2$  (mm) were obtained; color –black, with a metallic luster; habit: truncated tetragonal pyramid; crystals of prismatic-pyramidal and pyramidal form are also encountered; twinning was noted. Results of chemical analysis of the single crystals:

Found, wt. %: La 35.7; Te 63.3;  $\Sigma$  99

Calculated, wt. %: La 35.24; Te 64.76;  $\Sigma$  100

The qualitative reaction for iodine is negative ( $\text{Ag}^+$  test). The insufficient accuracy of the analytical data ( $\pm 0.5\%$ ) is associated with the small size of the sample.

**Table 1**

*Physical properties of lanthanum ditelluride*

| Form            | Color | M.p., °C | Syngroup   | Parameter   |               |               | Density |                                  |                                  | $x_r \cdot 10^{-6}$ | Conductivity (20°C) |                                  |
|-----------------|-------|----------|------------|-------------|---------------|---------------|---------|----------------------------------|----------------------------------|---------------------|---------------------|----------------------------------|
|                 |       |          |            | Space group | $(kX)$ (20°C) | $(kX)$ (20°C) | $Z$     | $\rho$ (20°C), g/cm <sup>3</sup> | $\rho$ (20°C), g/cm <sup>3</sup> |                     |                     | $\rho$ (20°C), g/cm <sup>3</sup> |
| $\text{LaTe}_2$ | Black | >1200    | Tetragonal | $P4/nmm$    | 4.55          | 9.16          | 2       | 6.80                             | 6.82                             | $8 \cdot 10^{-2}$   | $n$ -type           | -0.03                            |

The physical properties of  $\text{LaTe}_2$  are given in Table 1. It is necessary to note that the initial powdered  $\text{LaTe}_2$  possessed *p*-type conductivity. The study of the physical properties should be continued.

Under ordinary conditions, lanthanum ditelluride is quite stable in air.

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Received  
10 VII 1963

## CITED LITERATURE

1. P. Bro, J. Electrochem. Soc., **109**, No. 11, 1110 (1962).

*Note: Figure translations are in progress. See original paper for figures.*

*Source: Math-Net.Ru and CyberLeninka. Machine translation. Verify with the original.*