

## **Derivation of the conditions for equivalent positions in crystals: The dissymmetrization of barite by electron spin resonance spectra**

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### **Abstract**

The conditions for equivalent positions on the (hkl) face of growing crystal are derived using symmetry elements of the space group. It is shown by the example of the sp. gr.  $D_{2h}^{16}$  that the conditions of equivalent position formation coincide with conditions of the reflection of diffracted beams by crystal. It is established that electron spin resonance (ESR) centers in barite,  $SO_4$ -(I) and  $SO_4$ -(II), with only two conjugate spectra with equal intensity out of four, and  $SO_4$ -(III), with a different intensity of conjugate spectra  $K\alpha M = 2$ , are localized into the growth pyramid of the (001) face with a [010] step.  $SO_2$ -,  $SO_3$ -, and (IV) centers, having an identical intensity of the conjugate ESR spectra with  $K\alpha M = 2$ , are localized into the growth pyramid of the (210) face with a growth step [001]. © Pleiades Publishing, Inc., 2012.

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