

It will be noted that the Miller-Bravais symbols used in this table are not the same as those given in the Winkeltabellen for the corresponding angles. This is due to the difference of orientation, Goldschmidt using for the tourmaline an orientation G_2 in which the crystal has been turned 30° around the vertical axis, from Dana's orientation G_1 .

If $ghkl$ and $g'h'k'l'$ are the Miller-Bravais symbols of a certain face, respectively in the orientations G_1 and G_2 , those symbols are related by the following equations:

$$\begin{aligned} g &= h' - k' \\ h &= k' - g' \\ k &= g' - h' \\ l &= l' \end{aligned}$$

Example: $g'h'k'l' = 11\bar{2}0$

$$g = 1 + 2 = 3$$

$$h = 2 - 1 = 3$$

$$k = 1 - 1 = 0$$

$$l = 0$$

$$ghkl = 3\bar{3}00 = i100$$

The calculated angles of Goldschmidt are based on Miller's ratio $c = 0.4477$. The tourmaline from Baffin Land has a slightly different parameter. We may calculate this from the measurements made on the terminal faces, which gave very good or good reflections, by applying the formula:

$$c = \frac{\sqrt{3}}{2} \cdot \frac{l \tan \rho}{\sqrt{g^2 + h^2 + gh}}$$

The results are indicated in the following table:

Number of the face	Letter	Reflections	Symbol	ρ	c.
17	u	vg	$3\bar{2}\bar{5}1$	$66^\circ 21'$	0.45368
21	o	g	$2\bar{2}01$	$46^\circ 07'$	0.45023
23	o	vg	$0\bar{2}\bar{2}1$	$46^\circ 18'$	0.45312
24	p	vg	$10\bar{1}1$	$27^\circ 37'$	0.45307
25	p	vg	$\bar{1}101$	$27^\circ 35'$	0.45243
26	p	vg	$0\bar{1}11$	$27^\circ 28'$	0.45019
27	e	g	1102	$14^\circ 30'$	0.44794

In order to calculate the average value of c, we omit the exceptional value found from the measurements made on face 27 and take the average of the first six values of c. This leads us to:

$$c = 0.45216$$

Such a high value of c indicates that the tourmaline from Baffin Land probably contains ferric oxide Fe_2O_3 , a fact that is emphasized by the dark green color. Tourmalines containing alkalis, magnesia or ferrous iron show a vertical parameter smaller than 0.45 and their color is lighter. A chemical

analysis could not be performed on account of the small dimensions of the crystal.

The correspondence between the measured angles and the calculated angles of Goldschmidt is as a whole satisfactory; nevertheless some k and u faces gave poor reflections due to natural corrosion figures. In such cases the difference between measured and calculated angles become abnormal.

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