Rhodonite  
(Mn$^{2+}$, Fe$^{2+}$, Mg, Ca)SiO$_3$

Crystal Data: Triclinic.  
**Point Group:**  $\overline{1}$. Crystals rough, with rounded edges, typically tabular and elongated $\parallel [001]$, to 20 cm; commonly massive, cleavable to compact.  
**Twinning:** Lamellar, with $\{010\}$ as composition plane.

Physical Properties:  
Cleavage: Perfect on $\{110\}$ and $\{\overline{1}00\}$, $\{110\} \cap \{\overline{1}00\} = 92.5^\circ$; good on $\{001\}$. Fracture: Conchoidal to uneven. Hardness = 5.5–6.5. D$(\text{meas.}) = 3.57–3.76$ D$(\text{calc.}) = 3.726$

Optical Properties:  
Transparent to translucent.  
Color: Rose-pink to brownish red, gray, or yellow, exterior commonly black from manganese oxides; in thin section, colorless to faint pink.  
Streak: White.  
Luster: Vitreous, somewhat pearly on cleavages.  
**Optical Class:** Biaxial (+).  
**Pleochroism:** Weak; $X$ = yellowish red; $Y$ = pinkish red; $Z$ = pale yellowish red.  
**Orientation:** $X = a = 5^\circ$; $Y = b = 20^\circ$; $Z = c = 25^\circ$.  
**Dispersion:** $r < v$.  
$\alpha = 1.711–1.734$  
$\beta = 1.716–1.739$  
$\gamma = 1.724–1.748$  
$2V$(meas.) = 63°–87°

Cell Data:  
**Space Group:** $C\overline{1}$.  
**a** = 9.758  
**b** = 10.499  
**c** = 12.205  
$\alpha = 108.58^\circ$  
$\beta = 102.92^\circ$  
$\gamma = 82.52^\circ$  
**Z** = 20

2.772 (100), 2.980 (65), 2.924 (65), 3.14 (30), 3.34 (25), 3.10 (25), 3.09 (25), 2.651 (18)

Chemistry:  
<table>
<thead>
<tr>
<th>Element</th>
<th>Formula</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>SiO$_2$</td>
<td>45.46</td>
<td></td>
</tr>
<tr>
<td>Al$_2$O$_3$</td>
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<td></td>
</tr>
<tr>
<td>Fe$_2$O$_3$</td>
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<tr>
<td>FeO</td>
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<tr>
<td>MnO</td>
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<tr>
<td>ZnO</td>
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</tr>
<tr>
<td>MgO</td>
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<tr>
<td>CaO</td>
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</tr>
<tr>
<td>H$_2$O$^+$</td>
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</tr>
<tr>
<td>H$_2$O$^-$</td>
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<tr>
<td>Total</td>
<td>100.03</td>
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</tr>
</tbody>
</table>

(1) Chikla, Bhandara district, Maharashtra, India; corresponds to (Mn$^{2+}$,Ca$_{0.05}$Fe$^{2+}Mg_{0.02}$)$_{1.99}$Al$_{0.00}$O$_3$.

Occurrence: In manganese-bearing deposits formed by hydrothermal, contact and regional metamorphic, and sedimentary processes.

Association: Calcite, willemite, franklinite (Franklin, New Jersey, USA); calcite, alleghanyite, tephroite, galaxite, grunerite, magnetite (Bald Knob, North Carolina, USA).

Distribution: A few localities for studied or fine material are: from around Yekaterinburg (Sverdlovsk), Ural Mountains, Russia. In the Harstigen mine, near Persberg, and at Längban, Värmland, Sweden. In the Meldon quarry, Okehampton, Devon, England. In Romania, at Bâța (Război) and Cănic (Kapnik). From near Viu and St. Marcel, Val d’Aosta, Italy. At Broken Hill, New South Wales, Australia, as gem crystals. In the Noda-Tamagawa mine, Iwate Prefecture, and many other places in Japan. In the USA, from Franklin and Sterling Hill, Ogdensburg, Sussex Co., New Jersey; at Bald Knob, near Sparta, Alleghany Co., North Carolina; from Butte, Silver Bow Co., Montana. At Morro da Mina, Conselheiro Lafaiete, Minas Gerais, Brazil, as gem crystals. In the Chiurucu mine, Huanaco, Peru.

Name: From the Greek for rose, in reference to the mineral’s color.

References:  
(1) Dana, E.S. (1892) Dana’s system of mineralogy, (6th edition), 378–381.  

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