# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Structure of: (i) NaCl and (ii) CsCl</td>
<td>13</td>
</tr>
<tr>
<td>2.</td>
<td>Figure showing different types of solid solutions</td>
<td>18</td>
</tr>
<tr>
<td>3.</td>
<td>Lattice constant variation of KBr-KI mixed crystals with composition</td>
<td>27</td>
</tr>
<tr>
<td>4.</td>
<td>Schematic diagram of Czochralski growth geometry</td>
<td>48</td>
</tr>
<tr>
<td>5.</td>
<td>Photograph showing the crystal growth set up</td>
<td>53</td>
</tr>
<tr>
<td>6.</td>
<td>Photograph showing some of the grown crystals</td>
<td>57</td>
</tr>
<tr>
<td>7.</td>
<td>Wilson plot for NaCl</td>
<td>86</td>
</tr>
<tr>
<td>8.</td>
<td>Wilson plot for KCl</td>
<td>86</td>
</tr>
<tr>
<td>9.</td>
<td>Wilson plot for KBr</td>
<td>86</td>
</tr>
<tr>
<td>10.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.5}(\text{KCl})</em>{0.5})</td>
<td>86</td>
</tr>
<tr>
<td>11.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.5}(\text{KBr})</em>{0.5})</td>
<td>86</td>
</tr>
<tr>
<td>12.</td>
<td>Wilson plot for ((\text{KCl})<em>{0.5}(\text{KBr})</em>{0.5})</td>
<td>86</td>
</tr>
<tr>
<td>13.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.1}(\text{KCl})</em>{0.7}(\text{KBr})_{0.2})</td>
<td>86</td>
</tr>
<tr>
<td>14.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.2}(\text{KCl})</em>{0.6}(\text{KBr})_{0.2})</td>
<td>86</td>
</tr>
<tr>
<td>15.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.3}(\text{KCl})</em>{0.5}(\text{KBr})_{0.2})</td>
<td>86</td>
</tr>
<tr>
<td>16.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.4}(\text{KCl})</em>{0.4}(\text{KBr})_{0.2})</td>
<td>86</td>
</tr>
<tr>
<td>17.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.5}(\text{KCl})</em>{0.3}(\text{KBr})_{0.2})</td>
<td>86</td>
</tr>
<tr>
<td>18.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.6}(\text{KCl})</em>{0.2}(\text{KBr})_{0.2})</td>
<td>86</td>
</tr>
<tr>
<td>19.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.7}(\text{KCl})</em>{0.1}(\text{KBr})_{0.2})</td>
<td>86</td>
</tr>
<tr>
<td>20.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.1}(\text{KCl})</em>{0.5}(\text{KBr})_{0.4})</td>
<td>86</td>
</tr>
<tr>
<td>21.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.2}(\text{KCl})</em>{0.4}(\text{KBr})_{0.4})</td>
<td>86</td>
</tr>
<tr>
<td>22.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.3}(\text{KCl})</em>{0.3}(\text{KBr})_{0.4})</td>
<td>86</td>
</tr>
<tr>
<td>23.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.4}(\text{KCl})</em>{0.2}(\text{KBr})_{0.4})</td>
<td>86</td>
</tr>
<tr>
<td>24.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.5}(\text{KCl})</em>{0.1}(\text{KBr})_{0.4})</td>
<td>86</td>
</tr>
<tr>
<td>25.</td>
<td>Wilson plot for ((\text{NaCl})<em>{0.1}(\text{KCl})</em>{0.4}(\text{KBr})_{0.5})</td>
<td>86</td>
</tr>
</tbody>
</table>
26. Wilson plot for $\text{(NaCl)}_{0.2}(\text{KCl})_{0.3}(\text{KBr})_{0.5}$ 86
27. Wilson plot for $\text{(NaCl)}_{0.3}(\text{KCl})_{0.2}(\text{KBr})_{0.5}$ 86
28. Wilson plot for $\text{(NaCl)}_{0.4}(\text{KCl})_{0.1}(\text{KBr})_{0.5}$ 86
29. Wilson plot for $\text{(NaCl)}_{0.1}(\text{KCl})_{0.3}(\text{KBr})_{0.6}$ 86
30. Wilson plot for $\text{(NaCl)}_{0.2}(\text{KCl})_{0.2}(\text{KBr})_{0.6}$ 86
31. Wilson plot for $\text{(NaCl)}_{0.3}(\text{KCl})_{0.1}(\text{KBr})_{0.6}$ 86
32. Wilson plot for $\text{(NaCl)}_{0.1}(\text{KCl})_{0.1}(\text{KBr})_{0.8}$ 86
33. Variation of $\ln \sigma_{dc}$ with $1000/T$ for NaCl 102
34. Variation of $\ln \sigma_{dc}$ with $1000/T$ for KCl 102
35. Variation of $\ln \sigma_{dc}$ with $1000/T$ for KBr 102
36. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.5}(\text{KCl})_{0.5}$ 102
37. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.5}(\text{KBr})_{0.5}$ 102
38. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(KCl)}_{0.5}(\text{KBr})_{0.5}$ 102
39. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.1}(\text{KCl})_{0.7}(\text{KBr})_{0.2}$ 102
40. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.2}(\text{KCl})_{0.6}(\text{KBr})_{0.2}$ 102
41. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.3}(\text{KCl})_{0.5}(\text{KBr})_{0.2}$ 102
42. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.4}(\text{KCl})_{0.4}(\text{KBr})_{0.2}$ 102
43. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.5}(\text{KCl})_{0.3}(\text{KBr})_{0.2}$ 102
44. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.6}(\text{KCl})_{0.2}(\text{KBr})_{0.2}$ 102
45. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.7}(\text{KCl})_{0.1}(\text{KBr})_{0.2}$ 102
46. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.1}(\text{KCl})_{0.5}(\text{KBr})_{0.4}$ 102
47. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.2}(\text{KCl})_{0.4}(\text{KBr})_{0.4}$ 102
48. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.3}(\text{KCl})_{0.3}(\text{KBr})_{0.4}$ 102
49. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.4}(\text{KCl})_{0.2}(\text{KBr})_{0.4}$ 102
50. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.5}(\text{KCl})_{0.1}(\text{KBr})_{0.4}$ 102
51. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.1}(\text{KCl})_{0.4}(\text{KBr})_{0.5}$ 102
52. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.2}(\text{KCl})_{0.3}(\text{KBr})_{0.5}$ 102
53. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.3}(\text{KCl})_{0.2}(\text{KBr})_{0.5}$ 102
54. Variation of $\ln \sigma_{dc}$ with $1000/T$ for $\text{(NaCl)}_{0.4}(\text{KCl})_{0.1}(\text{KBr})_{0.5}$ 102
55. Variation of $\ln \sigma_{dc}$ with $1000/T$ for (NaCl)$_{0.1}$(KCl)$_{0.3}$(KBr)$_{0.6}$
56. Variation of $\ln \sigma_{dc}$ with $1000/T$ for (NaCl)$_{0.2}$(KCl)$_{0.2}$(KBr)$_{0.6}$
57. Variation of $\ln \sigma_{dc}$ with $1000/T$ for (NaCl)$_{0.3}$(KCl)$_{0.1}$(KBr)$_{0.6}$
58. Variation of $\ln \sigma_{dc}$ with $1000/T$ for (NaCl)$_{0.4}$(KCl)$_{0.1}$(KBr)$_{0.8}$
59. Variation of $\ln \sigma_{ac}$ with $1000/T$ for NaCl
60. Variation of $\ln \sigma_{ac}$ with $1000/T$ for KCl
61. Variation of $\ln \sigma_{ac}$ with $1000/T$ for KBr
62. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.5}$(KCl)$_{0.5}$
63. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.5}$(KBr)$_{0.5}$
64. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (KCl)$_{0.5}$(KBr)$_{0.5}$
65. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.1}$(KCl)$_{0.7}$(KBr)$_{0.2}$
66. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.2}$(KCl)$_{0.6}$(KBr)$_{0.2}$
67. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.3}$(KCl)$_{0.5}$(KBr)$_{0.2}$
68. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.4}$(KCl)$_{0.4}$(KBr)$_{0.2}$
69. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.5}$(KCl)$_{0.3}$(KBr)$_{0.2}$
70. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.6}$(KCl)$_{0.2}$(KBr)$_{0.2}$
71. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.7}$(KCl)$_{0.1}$(KBr)$_{0.2}$
72. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.1}$(KCl)$_{0.5}$(KBr)$_{0.4}$
73. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.2}$(KCl)$_{0.4}$(KBr)$_{0.4}$
74. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.3}$(KCl)$_{0.3}$(KBr)$_{0.4}$
75. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.4}$(KCl)$_{0.2}$(KBr)$_{0.4}$
76. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.5}$(KCl)$_{0.1}$(KBr)$_{0.4}$
77. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.1}$(KCl)$_{0.4}$(KBr)$_{0.5}$
78. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.2}$(KCl)$_{0.3}$(KBr)$_{0.5}$
79. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.3}$(KCl)$_{0.2}$(KBr)$_{0.5}$
80. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.4}$(KCl)$_{0.1}$(KBr)$_{0.5}$
81. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.1}$(KCl)$_{0.3}$(KBr)$_{0.6}$
82. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.2}$(KCl)$_{0.2}$(KBr)$_{0.6}$
83. Variation of $\ln \sigma_{ac}$ with $1000/T$ for (NaCl)$_{0.3}$(KCl)$_{0.1}$(KBr)$_{0.6}$
84. Variation of $\ln \sigma_{ac}$ with $1000/T$ for $(NaCl)_{0.1}(KCl)_{0.1}(KBr)_{0.8}$
85. UV spectra of NaCl
86. UV spectra of KCl
87. UV spectra of KBr
88. UV spectra of $(NaCl)_{0.5}(KCl)_{0.5}$
89. UV spectra of $(NaCl)_{0.5}(KBr)_{0.5}$
90. UV spectra of $(KCl)_{0.5}(KBr)_{0.5}$
91. UV spectra of $(NaCl)_{0.1}(KCl)_{0.7}(KBr)_{0.2}$
92. UV spectra of $(NaCl)_{0.2}(KCl)_{0.6}(KBr)_{0.2}$
93. UV spectra of $(NaCl)_{0.3}(KCl)_{0.5}(KBr)_{0.2}$
94. UV spectra of $(NaCl)_{0.4}(KCl)_{0.4}(KBr)_{0.2}$
95. UV spectra of $(NaCl)_{0.5}(KCl)_{0.3}(KBr)_{0.2}$
96. UV spectra of $(NaCl)_{0.6}(KCl)_{0.2}(KBr)_{0.2}$
97. UV spectra of $(NaCl)_{0.7}(KCl)_{0.1}(KBr)_{0.2}$
98. UV spectra of $(NaCl)_{0.1}(KCl)_{0.1}(KBr)_{0.4}$
99. UV spectra of $(NaCl)_{0.2}(KCl)_{0.5}(KBr)_{0.4}$
100. UV spectra of $(NaCl)_{0.3}(KCl)_{0.3}(KBr)_{0.4}$
101. UV spectra of $(NaCl)_{0.4}(KCl)_{0.2}(KBr)_{0.4}$
102. UV spectra of $(NaCl)_{0.5}(KCl)_{0.1}(KBr)_{0.4}$
103. UV spectra of $(NaCl)_{0.1}(KCl)_{0.4}(KBr)_{0.5}$
104. UV spectra of $(NaCl)_{0.2}(KCl)_{0.3}(KBr)_{0.5}$
105. UV spectra of $(NaCl)_{0.3}(KCl)_{0.2}(KBr)_{0.5}$
106. UV spectra of $(NaCl)_{0.4}(KCl)_{0.1}(KBr)_{0.5}$
107. UV spectra of $(NaCl)_{0.1}(KCl)_{0.3}(KBr)_{0.6}$
108. UV spectra of $(NaCl)_{0.2}(KCl)_{0.2}(KBr)_{0.6}$
109. UV spectra of $(NaCl)_{0.3}(KCl)_{0.1}(KBr)_{0.6}$
110. UV spectra of $(NaCl)_{0.1}(KCl)_{0.1}(KBr)_{0.8}$