

**Table S1.** SIMS data of  $\delta^{13}\text{C}$  and nitrogen abundances measured within natural seeds and synthetic rims of particular samples. Statistic accounts all the data available for particular crystallography. Errors ( $1\sigma$ ) are 0.2 ‰ for  $\delta^{13}\text{C}$  values and 10% for nitrogen abundances. Regular numbers were measured in Edinburgh microprobe facility. Bold numbers were measured in GFZ Potsdam SIMS laboratory

| Sample         | Octahedral growth         |             | Cubic growth              |            | seeds                     |            |
|----------------|---------------------------|-------------|---------------------------|------------|---------------------------|------------|
|                | $\delta^{13}\text{C}$ (‰) | N (at.ppm)  | $\delta^{13}\text{C}$ (‰) | N (at.ppm) | $\delta^{13}\text{C}$ (‰) | N (at.ppm) |
| 268-1          | -23.1                     | 2208        |                           |            | -5.4                      | 1516       |
|                | -23.1                     | 1868        |                           |            | -5.4                      | 824        |
|                | -22.8                     | 2561        |                           |            | -5.4                      |            |
|                | -23.0                     | 2001        |                           |            | -5.5                      |            |
|                | -23.3                     | 2196        |                           |            | <b>-5.7</b>               |            |
|                | -23.4                     | 1976        |                           |            | <b>-5.8</b>               |            |
|                | <b>-23.2</b>              | <b>1116</b> |                           |            | <b>-6.2</b>               |            |
|                | <b>-23.3</b>              | <b>1257</b> |                           |            | <b>-5.3</b>               |            |
|                | <b>-23.1</b>              | <b>1298</b> |                           |            | <b>-5.4</b>               |            |
|                | <b>-23.4</b>              | <b>1279</b> |                           |            |                           |            |
|                | <b>-23.1</b>              | <b>1301</b> |                           |            |                           |            |
|                | <b>-22.8</b>              | <b>1339</b> |                           |            |                           |            |
|                | <b>-22.5</b>              | <b>1528</b> |                           |            |                           |            |
|                | <b>-22.7</b>              | <b>1330</b> |                           |            |                           |            |
|                | <b>-22.6</b>              | <b>1346</b> |                           |            |                           |            |
|                |                           | <b>1336</b> |                           |            |                           |            |
|                |                           | <b>1387</b> |                           |            |                           |            |
|                |                           | <b>1421</b> |                           |            |                           |            |
|                |                           | <b>1559</b> |                           |            |                           |            |
|                |                           | <b>1485</b> |                           |            |                           |            |
|                |                           | <b>1281</b> |                           |            |                           |            |
| 268-2          | -23.3                     | 1740        | -24.0                     | 65         | -1.9                      | 1163       |
|                | -23.2                     | 1744        | -23.7                     | 200        | -2.4                      | 1370       |
|                | -23.3                     | <b>1112</b> | -23.9                     | 106        | -2.4                      |            |
|                |                           | <b>1383</b> | -24.1                     | <b>82</b>  | -2.4                      |            |
|                |                           | <b>1281</b> | -24.0                     | <b>41</b>  | -2.2                      |            |
|                |                           | <b>1148</b> | -23.9                     | <b>51</b>  | -2.0                      |            |
|                |                           |             | -23.6                     | <b>88</b>  | -2.6                      |            |
|                |                           |             | -23.9                     | <b>39</b>  | <b>-2.7</b>               |            |
|                |                           |             | -24.0                     | <b>16</b>  | <b>-2.6</b>               |            |
|                |                           |             | -23.9                     | <b>27</b>  | <b>-2.4</b>               |            |
|                |                           |             | -23.8                     | <b>80</b>  | <b>-2.1</b>               |            |
|                |                           |             | -23.8                     | <b>77</b>  | <b>-2.6</b>               |            |
|                |                           |             | <b>-23.7</b>              | <b>93</b>  | <b>-2.1</b>               |            |
|                |                           |             | <b>-24.0</b>              | <b>50</b>  |                           |            |
|                |                           |             |                           | <b>61</b>  |                           |            |
|                |                           |             |                           | <b>40</b>  |                           |            |
|                |                           |             |                           | <b>94</b>  |                           |            |
|                |                           |             |                           | <b>56</b>  |                           |            |
| <b>mean</b>    | -23.07                    | 1536        | -23.88                    | 70         |                           |            |
| <b>st.dev.</b> | 0.28                      | 375         | 0.14                      | 41         |                           |            |
| <b>n</b>       | 18                        | 27          | 14                        | 18         |                           |            |