

**Table S6.** Results of the GC-MS analysis of the gas phase extracted during shock destruction of cordierite № 6 (Muzkol complex, Pamir, Tajikistan, species diversity of 165 components).

Formula	Name	<sup>1</sup> CAS	<sup>2</sup> MW	Cordierite №6	
				<sup>3</sup> RT, min	<sup>4</sup> A, %
Aliphatic hydrocarbons					
Paraffins					
CH <sub>4</sub>	Methane	74-82-8	32	1.88	0.004
C <sub>2</sub> H <sub>6</sub>	Ethane	74-84-0	30	2.73	0.023
C <sub>3</sub> H <sub>8</sub>	n-Propane	74-98-6	44	4.63	0.008
C <sub>4</sub> H <sub>10</sub>	Isobutane	75-28-5	58	6.68	0.064
C <sub>4</sub> H <sub>10</sub>	n-Butane	106-97-8	58	6.99	0.004
C <sub>5</sub> H <sub>12</sub>	n-Pentane	109-66-0	72	9.48	0.050
C <sub>6</sub> H <sub>14</sub>	n-Hexane	110-54-3	86	13.06	0.014
C <sub>7</sub> H <sub>16</sub>	n-Heptane	142-82-5	100	17.52	0.051
C <sub>8</sub> H <sub>16</sub>	3-Methyleneheptane	1632-16-2	112	21.08	0.101
C <sub>8</sub> H <sub>18</sub>	n-Octane	111-65-9	114	21.82	0.040
C <sub>9</sub> H <sub>20</sub>	n-Nonane	111-84-2	128	25.81	0.068
C <sub>10</sub> H <sub>22</sub>	n-Decane	124-18-5	142	29.48	0.031
C <sub>11</sub> H <sub>24</sub>	n-Undecane	1120-21-4	156	32.59	0.038
C <sub>12</sub> H <sub>26</sub>	n-Dodecane	112-40-3	170	36.52	0.022
C <sub>13</sub> H <sub>28</sub>	n-Tridecane	629-50-5	184	41.90	0.038
C <sub>14</sub> H <sub>30</sub>	n-Tetradecane	629-59-4	198	50.39	0.046
C <sub>15</sub> H <sub>32</sub>	5-Methyltetradecane	25117-32-2	212	53.87	0.219
C <sub>15</sub> H <sub>32</sub>	n-Pentadecane	629-62-9	212	63.90	0.097
C <sub>16</sub> H <sub>34</sub>	n-Hexadecane	544-76-3	226	85.75	0.019
C <sub>17</sub> H <sub>36</sub>	n-Heptadecane	629-78-7	240	121.13	0.022
Olefins					
C <sub>2</sub> H <sub>4</sub>	Ethylene	74-85-1	28	2.51	0.016
C <sub>3</sub> H <sub>6</sub>	1-Propene	115-07-1	42	4.43	0.025
C <sub>4</sub> H <sub>8</sub>	2-Methyl-1-propene	115-11-7	56	6.43	0.071
C <sub>5</sub> H <sub>8</sub>	1,4-Pentadiene	591-93-5	68	8.68	0.001
C <sub>5</sub> H <sub>10</sub>	1-Pentene	109-67-1	70	9.09	0.037
C <sub>5</sub> H <sub>8</sub>	(E)-1,3-Pentadiene	2004-70-8	68	9.31	0.042
C <sub>5</sub> H <sub>8</sub>	3-Methyl-1,2-butadiene	598-25-4	68	9.56	0.002
C <sub>5</sub> H <sub>8</sub>	1,3-Pentadiene	504-60-9	68	9.86	0.010
C <sub>5</sub> H <sub>8</sub>	(Z)-1,3-Pentadiene	1574-41-0	68	9.91	0.005
C <sub>6</sub> H <sub>12</sub>	1-Hexene	592-41-6	84	12.84	0.028
C <sub>6</sub> H <sub>10</sub>	4-Methyl-1,3-pentadiene	926-56-7	82	13.77	0.001
C <sub>6</sub> H <sub>10</sub>	(Z)-3-Methyl-1,3-pentadiene	2787-45-3	82	14.17	0.002
C <sub>6</sub> H <sub>10</sub>	(E,E)-2,4-Hexadiene	5194-51-4	82	14.50	0.001
C <sub>7</sub> H <sub>14</sub>	1-Heptene	592-76-7	98	17.10	0.048
C <sub>8</sub> H <sub>16</sub>	3,4-Dimethyl-2-hexene	2213-37-8	112	20.95	0.045
C <sub>8</sub> H <sub>16</sub>	(E)-3-Octene	14919-01-8	112	21.28	0.049
C <sub>8</sub> H <sub>16</sub>	(Z)-4-Octene	7642-15-1	112	21.42	0.053

C <sub>8</sub> H <sub>16</sub>	(Z)-3-Octene	14850-22-7	112	21.48	0.053
C <sub>8</sub> H <sub>16</sub>	1-Octene	111-66-0	112	21.63	0.027
C <sub>9</sub> H <sub>18</sub>	1-Nonene	124-11-8	126	25.48	0.059
C <sub>10</sub> H <sub>20</sub>	1-Decene	872-05-9	140	29.16	0.177
C <sub>11</sub> H <sub>22</sub>	1-Undecene	821-95-4	154	32.41	0.030
C <sub>12</sub> H <sub>24</sub>	1-Dodecene	112-41-4	168	36.17	0.020
C <sub>13</sub> H <sub>26</sub>	1-Tridecene	2437-56-1	182	41.42	0.053
C <sub>14</sub> H <sub>28</sub>	1-Tetradecene	1120-36-1	196	49.56	0.046
C <sub>15</sub> H <sub>30</sub>	1-Pentadecene	13360-61-7	210	62.65	0.167
C <sub>16</sub> H <sub>32</sub>	1-Hexadecene	629-73-2	224	83.71	0.006
C <sub>17</sub> H <sub>34</sub>	1-Heptadecene	6765-39-5	238	118.64	0.011
<b>Cyclic hydrocarbons</b>					
<i>Cycloalkanes (naphthenes) and cycloalkenes</i>					
C <sub>6</sub> H <sub>10</sub>	4-Methylcyclopentene	1759-81-5	82	13.27	0.007
C <sub>8</sub> H <sub>14</sub>	3-Propylcyclopentene	34067-75-9	110	22.03	0.022
<i>Arenes</i>					
C <sub>6</sub> H <sub>6</sub>	Benzene	71-43-2	78	13.54	0.016
C <sub>7</sub> H <sub>8</sub>	Toluene	108-88-3	92	18.24	0.044
C <sub>8</sub> H <sub>10</sub>	Ethylbenzene	100-41-4	106	22.40	0.040
C <sub>8</sub> H <sub>10</sub>	p-Xylene	106-42-3	106	22.68	0.060
C <sub>8</sub> H <sub>8</sub>	Styrene	100-42-5	104	23.25	0.003
C <sub>9</sub> H <sub>12</sub>	Propylbenzene	103-65-1	120	26.31	0.017
C <sub>10</sub> H <sub>14</sub>	o-Cymene	527-84-4	134	29.26	0.037
C <sub>10</sub> H <sub>14</sub>	Butylbenzene	104-51-8	134	30.21	0.038
C <sub>11</sub> H <sub>16</sub>	Pentylbenzene	538-68-1	148	33.71	0.027
C <sub>12</sub> H <sub>18</sub>	Hexylbenzene	1077-16-3	162	37.92	0.041
C <sub>13</sub> H <sub>20</sub>	Heptylbenzene	1078-71-3	176	44.26	0.009
C <sub>14</sub> H <sub>22</sub>	Octylbenzene	2189-60-8	190	54.36	0.010
C <sub>15</sub> H <sub>24</sub>	Nonylbenzene	1081-77-2	204	70.46	0.011
<i>Polycyclic aromatic hydrocarbons (PAH)</i>					
C <sub>10</sub> H <sub>8</sub>	Naphthalene	91-20-3	128	33.57	0.001
C <sub>11</sub> H <sub>10</sub>	2-Methylnaphthalene	91-57-6	142	38.12	0.001
C <sub>11</sub> H <sub>10</sub>	1-Methylnaphthalene	90-12-0	142	38.57	<0.001
<b>Oxygenated hydrocarbons</b>					
<i>Alcohols, ethers and esters</i>					
CH <sub>4</sub> O	Methyl Alcohol	67-56-1	32	4.93	0.060
C <sub>2</sub> H <sub>6</sub> O	Ethanol	64-17-5	46	6.64	0.032
C <sub>4</sub> H <sub>10</sub> O	1-Butanol	71-36-3	74	13.47	0.035
C <sub>5</sub> H <sub>8</sub> O <sub>2</sub>	Methyl methacrylate	80-62-6	100	15.34	0.029
C <sub>4</sub> H <sub>4</sub> O <sub>2</sub>	γ-Crotonolactone	497-23-4	84	20.47	0.029
C <sub>6</sub> H <sub>6</sub> O	Phenol	108-95-2	94	25.48	0.037
C <sub>5</sub> H <sub>8</sub> O <sub>2</sub>	δ-Valerolactone	542-28-9	100	26.96	0.016
C <sub>6</sub> H <sub>10</sub> O <sub>2</sub>	γ-Caprolactone	695-06-7	114	30.56	0.039
C <sub>5</sub> H <sub>8</sub> Cl <sub>2</sub> O <sub>2</sub>	Butanoic acid, 3,4-dichloro-, methyl ester	819-93-2	170	31.17	0.001

C <sub>9</sub> H <sub>16</sub> O <sub>4</sub>	Acetoxyacetic acid, 3-methylbut-2-yl ester	x	188	33.87	0.050
C <sub>8</sub> H <sub>10</sub> O <sub>2</sub>	2-Phenoxyethanol	122-99-6	138	34.06	0.030
C <sub>8</sub> H <sub>14</sub> O <sub>2</sub>	γ-Octalactone	104-50-7	142	35.62	0.023
C <sub>9</sub> H <sub>16</sub> O <sub>2</sub>	γ-Nonalactone	104-61-0	156	40.90	0.052
C <sub>12</sub> H <sub>22</sub> O <sub>2</sub>	γ-Dodecalactone	2305-05-7	198	83.63	0.007
C <sub>14</sub> H <sub>18</sub> O <sub>4</sub>	Dipropyl phthalate	131-16-8	250	124.98	0.092
<i>Aldehydes</i>					
C <sub>2</sub> H <sub>4</sub> O	Acetaldehyde	75-07-0	44	5.41	0.064
C <sub>3</sub> H <sub>4</sub> O	2-Propenal	107-02-8	56	7.59	0.018
C <sub>3</sub> H <sub>6</sub> O	n-Propanal	123-38-6	58	7.81	0.021
C <sub>3</sub> H <sub>4</sub> O <sub>2</sub>	2-Oxopropanal	78-98-8	72	7.96	0.016
C <sub>5</sub> H <sub>10</sub> O	n-Pentanal	110-62-3	86	15.40	0.036
C <sub>5</sub> H <sub>4</sub> O <sub>2</sub>	2-Furaldehyde	98-01-1	96	18.00	0.018
C <sub>5</sub> H <sub>4</sub> O <sub>2</sub>	3-Furaldehyde	498-60-2	96	18.83	0.168
C <sub>6</sub> H <sub>12</sub> O	n-Hexanal	66-25-1	100	20.00	0.090
C <sub>6</sub> H <sub>6</sub> O <sub>2</sub>	5-Methyl-2-furancarboxaldehyde	620-02-0	110	24.05	0.043
C <sub>7</sub> H <sub>14</sub> O	n-Heptanal	111-71-7	114	24.30	0.084
C <sub>7</sub> H <sub>6</sub> O	Benzaldehyde	100-52-7	106	24.98	0.039
C <sub>8</sub> H <sub>16</sub> O	n-Octanal	124-13-0	128	28.23	0.100
C <sub>9</sub> H <sub>18</sub> O	n-Nonanal	124-19-6	142	31.84	0.161
C <sub>6</sub> H <sub>6</sub> O <sub>3</sub>	5-Hydroxymethylfurfural	67-47-0	126	32.84	0.193
C <sub>10</sub> H <sub>20</sub> O	n-Decanal	112-31-2	156	35.39	0.129
C <sub>11</sub> H <sub>22</sub> O	n-Undecanal	112-44-7	170	40.32	0.052
C <sub>12</sub> H <sub>24</sub> O	n-Dodecanal	112-54-9	184	47.93	0.053
C <sub>13</sub> H <sub>26</sub> O	n-Tridecanal	10486-19-8	198	60.22	0.095
C <sub>14</sub> H <sub>28</sub> O	n-Tetradecanal	124-25-4	212	79.97	0.009
C <sub>15</sub> H <sub>30</sub> O	n-Pentadecanal	2765-11-9	226	112.19	0.014
<i>Ketones</i>					
C <sub>3</sub> H <sub>6</sub> O	2-Propanone	67-64-1	58	7.88	0.021
C <sub>5</sub> H <sub>10</sub> O	2-Pentanone	107-87-9	86	14.42	0.013
C <sub>5</sub> H <sub>8</sub> O	Cyclopentanone	120-92-3	84	17.70	0.001
C <sub>6</sub> H <sub>12</sub> O	2-Hexanone	591-78-6	100	19.70	0.013
C <sub>5</sub> H <sub>4</sub> O <sub>3</sub>	3-Methyl-2,5-furandione	616-02-4	112	23.23	0.062
C <sub>7</sub> H <sub>14</sub> O	2-Heptanone	110-43-0	114	23.96	0.051
C <sub>8</sub> H <sub>16</sub> O	2-Methyl-4-heptanone	626-33-5	128	26.50	0.016
C <sub>8</sub> H <sub>16</sub> O	6-Methyl-2-heptanone	928-68-7	128	27.08	0.025
C <sub>8</sub> H <sub>14</sub> O	6-Methyl-5-hepten-2-one	110-93-0	126	27.26	0.027
C <sub>8</sub> H <sub>16</sub> O	2-Octanone	111-13-7	128	27.89	0.014
C <sub>9</sub> H <sub>18</sub> O	2-Nonanone	821-55-6	142	31.49	0.055
C <sub>10</sub> H <sub>20</sub> O	2-Decanone	693-54-9	156	34.97	0.052
C <sub>11</sub> H <sub>22</sub> O	2-Undecanone	112-12-9	170	39.70	0.040
C <sub>8</sub> H <sub>4</sub> O <sub>3</sub>	Phthalic anhydride	85-44-9	148	36.80	0.058

C <sub>12</sub> H <sub>24</sub> O	2-Dodecanone	6175-49-1	184	47.00	0.004
C <sub>13</sub> H <sub>26</sub> O	2-Tridecanone	593-08-8	198	58.54	0.053
C <sub>14</sub> H <sub>28</sub> O	2-Tetradecanone	2345-27-9	212	77.04	0.009
C <sub>15</sub> H <sub>30</sub> O	2-Pentadecanone	2345-28-0	226	107.53	0.042
<i>Carboxylic acids</i>					
C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>	Acetic acid	64-19-7	60	11.86	0.601
C <sub>3</sub> H <sub>6</sub> O <sub>2</sub>	n-Propanoic acid	79-09-4	74	16.79	0.003
C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	n-Butanoic acid	107-92-6	88	20.17	0.161
C <sub>5</sub> H <sub>10</sub> O <sub>2</sub>	3-Methylbutanoic acid	503-74-2	102	23.56	0.054
C <sub>5</sub> H <sub>10</sub> O <sub>2</sub>	n-Pentanoic acid	109-52-4	102	24.48	0.042
C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	n-Hexanoic acid	142-62-1	116	27.88	0.095
C <sub>7</sub> H <sub>14</sub> O <sub>2</sub>	n-Heptanoic acid	111-14-8	130	31.67	0.013
C <sub>8</sub> H <sub>16</sub> O <sub>2</sub>	n-Octanoic acid	124-07-2	144	34.67	0.084
C <sub>9</sub> H <sub>18</sub> O <sub>2</sub>	n-Nonanoic acid	112-05-0	158	39.30	0.234
C <sub>10</sub> H <sub>20</sub> O <sub>2</sub>	n-Decanoic acid	334-48-5	172	46.06	0.249
C <sub>11</sub> H <sub>22</sub> O <sub>2</sub>	n-Undecanoic acid	112-37-8	186	57.75	0.026
C <sub>11</sub> H <sub>14</sub> O <sub>3</sub>	2,4,6-Trimethylmandelic acid	20797-56-2	194	65.01	0.001
C <sub>12</sub> H <sub>24</sub> O <sub>2</sub>	n-Dodecanoic acid	143-07-7	200	73.89	0.575
C <sub>13</sub> H <sub>26</sub> O <sub>2</sub>	n-Tridecanoic acid	638-53-9	214	104.38	0.016
<b>Heterocyclic compounds</b>					
<i>Dioxanes</i>					
C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	1,4-Dioxane	123-91-1	88	14.29	0.001
C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	1,3-Dioxane	505-22-6	88	17.59	0.031
<i>Furans</i>					
C <sub>5</sub> H <sub>6</sub> O	2-Methylfuran	534-22-5	82	11.12	0.001
C <sub>6</sub> H <sub>8</sub> O	2-Ethylfuran	3208-16-0	96	17.34	0.003
C <sub>7</sub> H <sub>10</sub> O	2-Propylfuran	4229-91-8	110	18.60	0.020
C <sub>5</sub> H <sub>6</sub> O <sub>2</sub>	2-Methoxyfuran	25414-22-6	98	19.10	0.055
C <sub>8</sub> H <sub>12</sub> O	2-Butylfuran	4466-24-4	124	23.68	0.001
C <sub>9</sub> H <sub>14</sub> O	2-Pentylfuran	3777-69-3	138	27.63	0.024
C <sub>10</sub> H <sub>16</sub> O	2-Hexylfuran	3777-70-6	152	31.26	0.011
C <sub>11</sub> H <sub>18</sub> O	2-Heptylfuran	3777-71-7	166	34.72	0.001
C <sub>12</sub> H <sub>20</sub> O	2-Octylfuran	4179-38-8	180	39.32	0.002
C <sub>13</sub> H <sub>22</sub> O	2-Nonylfuran	x	194	46.31	0.001
C <sub>15</sub> H <sub>26</sub> O	2-Undecylfuran	4082-56-8	222	73.77	0.002
<b>Sulfonated compounds</b>					
H <sub>2</sub> S	Hydrogen sulfide	7783-06-4	34	3.21	0.003
COS	Carbonyl sulfide	463-58-1	60	3.83	0.001
O <sub>2</sub> S	Sulfur dioxide	7446-09-5	64	5.01	0.140
CS <sub>2</sub>	Carbon disulfide	75-15-0	76	6.06	0.010
C <sub>2</sub> H <sub>6</sub> S <sub>2</sub>	Dimethyl disulfide	624-92-0	94	16.29	0.001
C <sub>7</sub> H <sub>10</sub> S	2-Propylthiophene	1551-27-5	126	26.45	0.001
C <sub>9</sub> H <sub>14</sub> S	2-Pentylthiophene	4861-58-9	154	33.41	0.001
C <sub>10</sub> H <sub>16</sub> S	2-Hexylthiophene	18794-77-9	168	36.64	0.001

Nitrogenated compounds					
N <sub>2</sub>	Nitrogen	7727-37-9	28	1.87	0.176
C <sub>5</sub> H <sub>9</sub> N	1-Isocyanobutane	2769-64-4	83	6.79	0.004
CH <sub>3</sub> NO	Formamide	75-12-7	45	8.39	0.004
C <sub>2</sub> H <sub>5</sub> NO	Acetamide	60-35-5	59	15.17	0.047
C <sub>5</sub> H <sub>5</sub> N	Pyridine	110-86-1	79	15.82	0.002
C <sub>7</sub> H <sub>15</sub> N	1,2-Dimethylpiperidine	671-36-3	113	23.07	0.002
C <sub>6</sub> H <sub>8</sub> N <sub>2</sub> O	2-Methoxy-6-methylpyrazine	2882-21-5	124	28.13	0.159
C <sub>4</sub> H <sub>5</sub> NO <sub>2</sub>	Succinimide	123-56-8	99	28.94	0.048
C <sub>5</sub> H <sub>9</sub> NO	1-Methyl-2-pyrrolidone	872-50-4	99	30.88	0.001
Inorganic compounds					
<i>Oxides</i>					
CO <sub>2</sub>	Carbon dioxide	124-38-9	44	2.15	24.294
H <sub>2</sub> O	Water	7732-18-5	18	3.26	67.879

Note: <sup>1</sup>CAS – unique numerical identifier of chemical compounds included in the register Chemical Abstracts Service (<https://www.cas.org>); <sup>2</sup>MW – nominal mass; <sup>3</sup>RT – retention time; <sup>4</sup>A – normalized area (the area ratio of the individual gas mixture components to the summ of the areas of all the components in the chromatogram).