

Table S4. Results of the GC-MS analysis of the gas phase extracted during shock destruction of cordierite № 4 (Muzkol complex, Pamir, Tajikistan, species diversity of 170 components).

Formula	Name	¹ CAS/(NIST)	² MW	Cordierite №4	
				³ RT, min	⁴ A, %
Aliphatic hydrocarbons					
Paraffins					
CH ₄	Methane	74-82-8	32	1.92	0.004
C ₂ H ₆	Ethane	74-84-0	30	2.80	0.039
C ₃ H ₈	n-Propane	74-98-6	44	4.65	0.020
C ₄ H ₁₀	Isobutane	75-28-5	58	6.71	0.014
C ₄ H ₁₀	n-Butane	106-97-8	58	7.03	0.023
C ₅ H ₁₂	n-Pentane	109-66-0	72	9.49	0.018
C ₆ H ₁₄	n-Hexane	110-54-3	86	13.07	0.036
C ₇ H ₁₆	n-Heptane	142-82-5	100	17.57	0.095
C ₈ H ₁₆	3-Methyleneheptane	1632-16-2	112	21.13	0.250
C ₈ H ₁₈	n-Octane	111-65-9	114	21.83	0.068
C ₉ H ₂₀	n-Nonane	111-84-2	128	25.83	0.131
C ₁₀ H ₂₂	n-Decane	124-18-5	142	29.46	0.001
C ₁₁ H ₂₄	n-Undecane	1120-21-4	156	32.62	0.092
C ₁₂ H ₂₆	n-Dodecane	112-40-3	170	36.57	0.057
C ₁₃ H ₂₈	n-Tridecane	629-50-5	184	41.98	0.087
C ₁₄ H ₃₀	n-Tetradecane	629-59-4	198	50.39	0.129
C ₁₅ H ₃₂	5-Methyltetradecane	25117-32-2	212	54.06	0.447
C ₁₅ H ₃₂	n-Pentadecane	629-62-9	212	63.91	0.216
C ₁₆ H ₃₄	n-Hexadecane	544-76-3	226	85.58	0.053
C ₁₇ H ₃₆	n-Heptadecane	629-78-7	240	121.22	0.051
Olefins					
C ₂ H ₄	Ethylene	74-85-1	28	2.51	0.021
C ₃ H ₆	1-Propene	115-07-1	42	4.48	0.441
C ₄ H ₈	2-Methyl-1-propene	115-11-7	56	6.46	0.135
C ₅ H ₈	1,4-Pentadiene	591-93-5	68	8.69	0.001
C ₅ H ₁₀	1-Pentene	109-67-1	70	9.11	0.025
C ₅ H ₈	(E)-1,3-Pentadiene	2004-70-8	68	9.33	0.147
C ₅ H ₈	3-Methyl-1,2-butadiene	598-25-4	68	9.58	0.007
C ₅ H ₈	1,3-Pentadiene	504-60-9	68	9.86	0.003
C ₅ H ₈	(Z)-1,3-Pentadiene	1574-41-0	68	9.91	0.009
C ₆ H ₁₂	1-Hexene	592-41-6	84	12.86	0.017
C ₆ H ₁₀	4-Methyl-1,3-pentadiene	926-56-7	82	13.94	0.007
C ₆ H ₁₀	(Z)-3-Methyl-1,3-pentadiene	2787-45-3	82	14.27	0.009
C ₆ H ₁₀	(E,E)-2,4-Hexadiene	5194-51-4	82	14.55	0.003
C ₇ H ₁₄	1-Heptene	592-76-7	98	17.14	0.074
C ₈ H ₁₆	3,4-Dimethyl-2-hexene	2213-37-8	112	20.97	0.084
C ₈ H ₁₆	(E)-3-Octene	14919-01-8	112	21.25	0.129
C ₈ H ₁₆	(Z)-4-Octene	7642-15-1	112	21.50	0.105

C ₈ H ₁₆	(Z)-3-Octene	14850-22-7	112	21.53	0.155
C ₈ H ₁₆	1-Octene	111-66-0	112	21.65	0.070
C ₉ H ₁₈	1-Nonene	124-11-8	126	25.45	0.072
C ₁₀ H ₂₀	1-Decene	872-05-9	140	29.19	0.262
C ₁₁ H ₂₂	1-Undecene	821-95-4	154	32.44	0.072
C ₁₂ H ₂₄	1-Dodecene	112-41-4	168	36.24	0.052
C ₁₃ H ₂₆	1-Tridecene	2437-56-1	182	41.48	0.123
C ₁₄ H ₂₈	1-Tetradecene	1120-36-1	196	49.61	0.090
C ₁₅ H ₃₀	1-Pentadecene	13360-61-7	210	62.71	0.334
C ₁₆ H ₃₂	1-Hexadecene	629-73-2	224	83.80	0.010
C ₁₇ H ₃₄	1-Heptadecene	6765-39-5	238	118.67	0.023
Cyclic hydrocarbons					
<i>Cycloalkanes (naphthenes) and cycloalkenes</i>					
C ₆ H ₁₀	4-Methylcyclopentene	1759-81-5	82	13.31	0.020
C ₈ H ₁₄	3-Propylcyclopentene	34067-75-9	110	22.07	0.053
<i>Arenes</i>					
C ₆ H ₆	Benzene	71-43-2	78	13.52	0.022
C ₇ H ₈	Toluene	108-88-3	92	18.27	0.087
C ₈ H ₁₀	Ethylbenzene	100-41-4	106	22.45	0.080
C ₈ H ₁₀	p-Xylene	106-42-3	106	22.71	0.075
C ₈ H ₈	Styrene	100-42-5	104	23.28	0.027
C ₉ H ₁₂	Propylbenzene	103-65-1	120	26.38	0.025
C ₁₀ H ₁₄	o-Cymene	527-84-4	134	29.29	0.019
C ₁₀ H ₁₄	Butylbenzene	104-51-8	134	30.23	0.066
C ₁₁ H ₁₆	Pentylbenzene	538-68-1	148	33.72	0.055
C ₁₂ H ₁₈	Hexylbenzene	1077-16-3	162	37.92	0.070
C ₁₃ H ₂₀	Heptylbenzene	1078-71-3	176	44.28	0.026
C ₁₄ H ₂₂	Octylbenzene	2189-60-8	190	53.92	0.017
C ₁₅ H ₂₄	Nonylbenzene	1081-77-2	204	70.42	0.023
C ₁₈ H ₂₈	1-Propyl-1-nonenylbenzene	54986-39-9	244	112.57	0.031
<i>Polycyclic aromatic hydrocarbons (PAH)</i>					
C ₁₀ H ₈	Naphthalene	91-20-3	128	33.57	0.007
C ₁₁ H ₁₀	2-Methylnaphthalene	91-57-6	142	38.15	0.002
C ₁₁ H ₁₀	1-Methylnaphthalene	90-12-0	142	38.68	0.002
Oxygenated hydrocarbons					
<i>Alcohols, ethers and esters</i>					
CH ₄ O	Methyl Alcohol	67-56-1	32	4.96	0.028
C ₂ H ₆ O	Ethanol	64-17-5	46	6.51	0.065
C ₄ H ₁₀ O	1-Butanol	71-36-3	74	13.52	0.110
C ₆ H ₆ O	Phenol	108-95-2	94	25.53	0.012
C ₈ H ₁₀ O ₂	2-Phenoxyethanol	122-99-6	138	34.12	0.063
C ₅ H ₈ O ₂	Methyl methacrylate	80-62-6	100	15.47	0.048
C ₄ H ₄ O ₂	γ-Crotonolactone	497-23-4	84	20.52	0.074
C ₅ H ₈ O ₂	δ-Valerolactone	542-28-9	100	26.99	0.036

C ₈ H ₁₈ O	2-Ethyl-1-hexanol	104-76-7	130	29.19	0.442
C ₈ H ₁₈ O	2-Ethyl-4-methylpentan-1-ol	106-67-2	130	29.38	0.330
C ₄ H ₆ O ₃	2(3H)-Furanone, dihydro-4-hydroxy-	5469-16-9	102	30.39	0.018
C ₆ H ₁₀ O ₂	γ-Caprolactone	695-06-7	114	30.59	0.048
C ₅ H ₈ Cl ₂ O ₂	Butanoic acid, 3,4-dichloro-, methyl ester	819-93-2	170	31.21	0.016
C ₉ H ₁₆ O ₄	Acetoxyacetic acid, 3-methylbut-2-yl ester	x	188	33.91	0.139
C ₈ H ₁₄ O ₂	γ-Octalactone	104-50-7	142	35.65	0.058
C ₉ H ₁₆ O ₂	γ-Nonalactone	104-61-0	156	40.98	0.112
C ₁₂ H ₂₂ O ₂	γ-Dodecalactone	2305-05-7	198	83.86	0.013
C ₁₄ H ₁₈ O ₄	Dipropyl phthalate	131-16-8	250	125.16	0.271
<i>Aldehydes</i>					
C ₂ H ₄ O	Acetaldehyde	75-07-0	44	5.45	0.152
C ₃ H ₄ O	2-Propenal	107-02-8	56	7.61	0.010
C ₃ H ₆ O	n-Propanal	123-38-6	58	7.83	0.050
C ₃ H ₄ O ₂	2-Oxopropanal	78-98-8	72	8.16	0.173
C ₅ H ₁₀ O	3-Methylbutanal	590-86-3	86	14.52	0.002
C ₅ H ₁₀ O	n-Pentanal	110-62-3	86	15.54	0.101
C ₅ H ₄ O ₂	2-Furaldehyde	98-01-1	96	18.05	0.026
C ₅ H ₄ O ₂	3-Furaldehyde	498-60-2	96	18.90	0.856
C ₆ H ₁₂ O	n-Hexanal	66-25-1	100	20.05	1.204
C ₆ H ₆ O ₂	5-Methyl-2-furancarboxaldehyde	620-02-0	110	24.10	0.075
C ₇ H ₁₄ O	n-Heptanal	111-71-7	114	24.31	0.075
C ₇ H ₆ O	Benzaldehyde	100-52-7	106	24.00	0.085
C ₈ H ₁₆ O	n-Octanal	124-13-0	128	28.28	0.232
C ₉ H ₁₈ O	n-Nonanal	124-19-6	142	31.87	0.326
C ₆ H ₆ O ₃	5-Hydroxymethylfurfural	67-47-0	126	32.89	0.445
C ₁₀ H ₂₀ O	n-Decanal	112-31-2	156	35.44	0.280
C ₁₁ H ₂₂ O	n-Undecanal	112-44-7	170	40.38	0.117
C ₁₂ H ₂₄ O	n-Dodecanal	112-54-9	184	48.08	0.109
C ₁₃ H ₂₆ O	n-Tridecanal	10486-19-8	198	60.27	0.232
C ₁₄ H ₂₈ O	n-Tetradecanal	124-25-4	212	80.10	0.021
C ₁₅ H ₃₀ O	n-Pentadecanal	2765-11-9	226	112.57	0.039
<i>Ketones</i>					
C ₃ H ₆ O	2-Propanone	67-64-1	58	7.94	0.045
C ₅ H ₁₀ O	2-Pentanone	107-87-9	86	14.45	0.036
C ₅ H ₈ O	Cyclopentanone	120-92-3	84	17.79	0.002
C ₆ H ₁₂ O	2-Hexanone	591-78-6	100	19.73	0.028
C ₅ H ₄ O ₃	3-Methyl-2,5-furandione	616-02-4	112	23.25	0.152
C ₇ H ₁₄ O	2-Heptanone	110-43-0	114	23.98	0.058
C ₈ H ₁₆ O	2-Methyl-4-heptanone	626-33-5	128	26.54	0.025

C ₈ H ₁₆ O	6-Methyl-2-heptanone	928-68-7	128	27.14	0.052
C ₈ H ₁₄ O	6-Methyl-5-hepten-2-one	110-93-0	126	27.39	0.088
C ₈ H ₁₆ O	2-Octanone	111-13-7	128	27.79	0.003
C ₉ H ₁₈ O	2-Nonanone	821-55-6	142	31.51	0.887
C ₁₀ H ₂₀ O	2-Decanone	693-54-9	156	34.97	0.115
C ₁₁ H ₂₂ O	2-Undecanone	112-12-9	170	39.78	0.077
C ₈ H ₄ O ₃	Phthalic anhydride	85-44-9	148	36.87	0.072
C ₁₂ H ₂₄ O	2-Dodecanone	6175-49-1	184	47.08	0.010
C ₁₃ H ₂₆ O	2-Tridecanone	593-08-8	198	58.45	0.130
C ₁₄ H ₂₈ O	2-Tetradecanone	2345-27-9	212	77.04	0.021
C ₁₅ H ₃₀ O	2-Pentadecanone	2345-28-0	226	107.54	0.091
<i>Carboxylic acids</i>					
C ₂ H ₄ O ₂	Acetic acid	64-19-7	60	12.07	0.263
C ₃ H ₆ O ₂	n-Propanoic acid	79-09-4	74	16.84	0.005
C ₄ H ₈ O ₂	n-Butanoic acid	107-92-6	88	20.57	0.022
C ₅ H ₁₀ O ₂	3-Methylbutanoic acid	503-74-2	102	23.53	0.005
C ₅ H ₁₀ O ₂	n-Pentanoic acid	109-52-4	102	24.48	0.024
C ₆ H ₁₂ O ₂	n-Hexanoic acid	142-62-1	116	27.86	0.082
C ₇ H ₁₄ O ₂	n-Heptanoic acid	111-14-8	130	31.34	0.029
C ₈ H ₁₆ O ₂	n-Octanoic acid	124-07-2	144	34.65	0.043
C ₉ H ₁₈ O ₂	n-Nonanoic acid	112-05-0	158	39.08	0.057
C ₁₀ H ₂₀ O ₂	n-Decanoic acid	334-48-5	172	45.83	0.129
C ₁₁ H ₂₂ O ₂	n-Undecanoic acid	112-37-8	186	57.17	0.019
C ₁₁ H ₁₄ O ₃	2,4,6-Trimethylmandelic acid	20797-56-2	194	65.06	0.004
C ₁₂ H ₂₄ O ₂	n-Dodecanoic acid	143-07-7	200	74.07	0.134
C ₁₃ H ₂₆ O ₂	n-Tridecanoic acid	638-53-9	214	104.95	0.028
Heterocyclic compounds					
<i>Dioxanes</i>					
C ₄ H ₈ O ₂	1,4-Dioxane	123-91-1	88	14.42	0.001
C ₄ H ₈ O ₂	1,3-Dioxane	505-22-6	88	17.69	0.066
<i>Furans</i>					
C ₅ H ₆ O	2-Methylfuran	534-22-5	82	11.16	0.008
C ₆ H ₈ O	2-Ethylfuran	3208-16-0	96	17.35	0.005
C ₇ H ₁₀ O	2-Propylfuran	4229-91-8	110	18.70	0.062
C ₅ H ₆ O ₂	2-Methoxyfuran	25414-22-6	98	19.15	0.067
C ₈ H ₁₂ O	2-Butylfuran	4466-24-4	124	23.73	0.004
C ₉ H ₁₄ O	2-Pentylfuran	3777-69-3	138	27.64	0.046
C ₁₀ H ₁₆ O	2-Hexylfuran	3777-70-6	152	31.29	0.024
C ₁₁ H ₁₈ O	2-Heptylfuran	3777-71-7	166	34.77	0.002
C ₁₂ H ₂₀ O	2-Octylfuran	4179-38-8	180	39.35	0.014
C ₁₃ H ₂₂ O	2-Nonylfuran	x	194	46.40	0.003
C ₁₅ H ₂₆ O	2-Undecylfuran	4082-56-8	222	73.76	0.003
Sulfonated compounds					
H ₂ S	Hydrogen sulfide	7783-06-4	34	3.11	0.003
COS	Carbonyl sulfide	463-58-1	60	3.88	0.003

O ₂ S	Sulfur dioxide	7446-09-5	64	5.03	0.160
CS ₂	Carbon disulfide	75-15-0	76	8.46	0.003
C ₂ H ₆ S ₂	Dimethyl disulfide	624-92-0	94	16.37	0.001
C ₇ H ₁₀ S	2-Propylthiophene	1551-27-5	126	26.48	0.003
C ₉ H ₁₄ S	2-Pentylthiophene	4861-58-9	154	33.44	0.005
C ₁₀ H ₁₆ S	2-Hexylthiophene	18794-77-9	168	36.69	0.002
Nitrogenated compounds					
N ₂	Nitrogen	7727-37-9	28	1.87	0.250
C ₅ H ₉ N	1-Isocyanobutane	2769-64-4	83	6.81	0.009
CH ₃ NO	Formamide	75-12-7	45	8.43	0.004
C ₂ H ₅ NO	Acetamide	60-35-5	59	15.29	0.069
C ₅ H ₅ N	Pyridine	110-86-1	79	15.92	0.035
C ₇ H ₁₅ N	1,2-Dimethylpiperidine	671-36-3	113	23.06	0.013
C ₆ H ₈ N ₂ O	2-Methoxy-6-methylpyrazine	2882-21-5	124	28.18	0.254
C ₄ H ₅ NO ₂	Succinimide	123-56-8	99	28.98	0.114
C ₅ H ₉ NO	1-Methyl-2-pyrrolidone	872-50-4	99	30.91	0.008
Inorganic compounds					
<i>Oxides</i>					
CO ₂	Carbon dioxide	124-38-9	44	2.22	25.795
H ₂ O	Water	7732-18-5	18	3.38	58.907

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