

SUPPLEMENTARY DATA (non-published material)

FOR (title):

Weathering and safety of antibacterial polymer-rosin polyfilaments

by

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Data description

This data is a detail report related to the VOC measurements described and analyzed in the paper **Weathering and safety of antibacterial polymer-rosin polyfilaments**. The detailed description of the method, samples preparations and main outcomes are given in the manuscript. Tables 1-7 indicate the average and (range) concentration of emitted compounds from each polyfilament fibre sample analyzed at different temperatures.

Table 1. Average and (range) concentration of emitted compounds from fPE analyzed at different temperatures.

Component	Average and (range) of concentrations (ng/l/g) of compounds emitted from PE fibres tested at different temperatures		
	25 °C	60 °C	105 °C
1,4-Methanoazulene, decahydro-4,8,8-trimethyl-9-methylene-, [1S-(1.alpha.,3a.beta.,4.alpha.,8a.beta.)]-	93 (77-108)	2236 (1752-2721)	26676 (23389 - 29963)
Tetradecane	5 (0-5)	2386 (1818-2954)	72882 (64173-81590)
Dodecane	18 (10-27)	1555 (972-2139)	29482 (24571-34393)
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, (1S-endo)-		12 (0-12)	99 (81-118)
Tricyclo[5.4.0.0(2,8)]undec-9-ene, 2,6,6,9-tetramethyl-	5 (3-6)	136 (100-173)	1485 (1223-1747)
Decane		123(73-173)	3908 (3533-4283)
Naphthalene, 1,2,3,4-tetrahydro-1,6-dimethyl-4-(1-methylethyl)-, (1S-cis)-		158 (127-190)	2411 (2013-2808)
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, acetate, (1S-endo)-		59(39-80)	432(331-522)
.alpha.-Cubebene	10 (0-10)	38 (25-51)	3665 (2885-4444)
2-Oxabicyclo[2.2.2]octan-6-ol, 1,3,3-trimethyl-		15 (0-15)	
1-Butanol	154 (0-154)	210 (0-210)	87(0-87)
Caryophyllene	6 (4-8)	185 (121-249)	2062 (1564-2561)
Decanal		68 (54-82)	717 (491-942)
Nonanal	8 (0-8)	96 (55-136)	624 (402-845)
1,4-Methano-1H-indene, octahydro-4-methyl-8-methylene-7-(1-methylethyl)-, [1S-(1.alpha.,3a.beta.,4.alpha.,7.alpha.,7a.beta.)]-		59 (44-74)	709 (571-848)
Bicyclo[2.2.1]heptan-2-ol, 1,3,3-trimethyl-		7 (6-8)	36 (0-36)
Glycerin			2027 (1620-2434)
Naphthalene, 1,2,4a,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)-		67 (0-67)	1530 (1430-1629)
Copaene		248 (175-320)	
Dodecane, 2,6,11-trimethyl-			790 (0-790)
Pentadecane		17 (13-21)	647 (446-847)

Nonane, 2,6-dimethyl-			188 (171-204)
Naphthalene, 1,2,4a,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-		20 (18-22)	699 (364-1034)
Tridecane	8 (0-8)	23 (16-29)	458(527-389)
Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-7-methyl-4-methylene-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)-		98 (39-157)	45 4(52-855)

Table 2. Average and (range) concentration of emitted compounds from fPE10 analyzed at different temperatures.

Component	Average and (range) of concentrations (ng/l/g) of compounds emitted from PE-rosin fibres tested at different temperatures		
	25 °C	60 °C	105 °C
1,4-Methanoazulene, decahydro-4,8,8-trimethyl-9-methylene-, [1S-(1.alpha.,3a.beta.,4.alpha.,8a.beta.)]-	66 (50-83)	2450 (2002-2898)	85213 (59066-111359)
Tetradecane		1011 (919-1104)	37949 (32830-43068)
Dodecane	8 (7-10)	633 (618-648)	19102 (14329-23875)
Propanoic acid, 2-methyl-		138 (70-206)	8141 (4247-12035)
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, (1S-endo)-		71 (60-83)	5989 (5540-6438)
Tricyclo[5.4.0.0(2,8)]undec-9-ene, 2,6,6,9-tetramethyl-		101 (75-127)	3234 (1997-4472)
Decane		11 (10-12)	745 (666-823)
Naphthalene, 1,2,3,4-tetrahydro-1,6-dimethyl-4-(1-methylethyl)-, (1S-cis)-		96 (84-107)	2042 (1669-2416)
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, acetate, (1S-endo)-		100 (0-100)	3768 (2781-4755)
.alpha.-Cubebene		14 (12-16)	433 (345-521)
2-Oxabicyclo[2.2.2]octan-6-ol, 1,3,3-trimethyl-		98 (0-98)	4045 (3069-5020)
1-Butanol	21(8-35)	594 (410-777)	2699 (2217-3181)
1,2,4-Methenoazulene, decahydro-1,5,5,8a-tetramethyl-, [1S-(1.alpha.,2.alpha.,3a.beta.,4.alpha.,8a.beta.,9R*)]-		68(0-68)	3232 (1175-5290)
Caryophyllene		25(0-25)	615 (602-628)
Decanal	6 (0-6)	66(60-73)	1410 (1094-1727)
Nonanal	9 (0-9)	109(97-121)	1403 (1369-1437)
1,4-Methano-1H-indene, octahydro-4-methyl-8-methylene-7-(1-methylethyl)-, [1S-(1.alpha.,3a.beta.,4.alpha.,7.alpha.,7a.beta.)]-		45(36-55)	1357 (1061-1653)
Benzenemethanol, .alpha.,.alpha.,4-trimethyl-		55(53-57)	2082 (1667-2497)
Bicyclo[2.2.1]heptan-2-ol, 1,3,3-trimethyl-		26(17-35)	2062 (1726-2397)
Naphthalene, 1,2,4a,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)-		46(0-46)	
Copaene		102(97-107)	2186 (0-2186)
Dodecane, 2,6,11-trimethyl-			1041 (1012-1070)
Pentadecane		18(0-18)	621 (595-648)
Bicyclo[2.2.1]heptan-2-one, 1,7,7-trimethyl-, (1R)-			1090 (755-1424)
Nonane, 2,6-dimethyl-		65 (0-65)	828 (585-1071)

Naphthalene, 1,2,4a,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-		9 (0-9)	544 (0-544)
Tridecane		19 (17-21)	491 (430-552)
Hexanoic acid		8 (0-8)	952 (682-1223)
Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-7-methyl-4-methylene-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)-		28 (26-30)	662 (0-662)
Phenol, 2,5-bis(1,1-dimethylethyl)-			1780 (0-1780)

Table 3. Average and (range) concentration of emitted compounds from fPA analyzed at different temperatures.

Component	Average and (range) of concentrations (ng/l/g) of compounds emitted from PA fibres tested at different temperatures		
	25 °C	60 °C	105 °C
Caprolactam		1028 (859-1198)	55602 (41137-70066)
1,4-Methanoazulene, decahydro-4,8,8-trimethyl-9-methylene-, [1S-(1.alpha.,3a.beta.,4.alpha.,8a.beta.)]-	3 (0-3)	15 (6-25)	125 (64-187)
Caryophyllene			49 (25-73)
1-Butanol	30 (25-34)	594 (448-739)	778 (298-1258)
Naphthalene, 1,2,3,4-tetrahydro-1,6-dimethyl-4-(1-methylethyl)-, (1S-cis)-		6 (0-6)	16 (0-16)
Naphthalene, 1,2,3,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, (1S-cis)-		2 (0-2)	7 (0-7)
Decanal	26 (0-26)	37 (29-42)	298 (0-298)
Naphthalene, 1,2,4a,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)-			9 (0-9)
Tetradecane	6 (0-6)	40 (10-70)	148 (143-152)
Nonanal		30 (23-36)	139 (43-234)
Acetic acid			1656 (0-1656)
Cyclotrisiloxane, hexamethyl-	149 (3-296)	56 (49-63)	128 (113-142)
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, (1S-endo)-		4 (0-4)	
Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-7-methyl-4-methylene-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)-			3 (0-3)
Benzene, 1-methyl-2-(1-methylethyl)-		14 (0-14)	
Benzyl Alcohol		15 (0-15)	205 (97-313)
Cyclotetrasiloxane, octamethyl-	107 (0-107)	23 (21-24)	49 (35-63)

Table 4. Average and (range) concentration of emitted compounds from fPA10 analyzed at different temperatures.

Component	Average and (range) of concentrations (ng/l/g) of compounds emitted from PA-rosin fibres tested at different temperatures		
	25 °C	60 °C	105 °C
Caprolactam		473 (376-570)	81710 (78497-84923)

1,4-Methanoazulene, decahydro-4,8,8-trimethyl-9-methylene-, [1S-(1.alpha.,3a.beta.,4.alpha.,8a.beta.)]-		58 (18-98)	15282 (8246-22318)
Caryophyllene		14 (0-14)	10273 (5725-14820)
p-menth-1-en-8-ol			8267 (5473-11061)
1-Butanol	158 (0-158)	337 (0-337)	958(700-1217)
Copaene		11 (0-11)	2219 (1271-3168)
Naphthalene, 1,2,3,4-tetrahydro-1,6-dimethyl-4-(1-methylethyl)-, (1S-cis)-		13 (0-13)	2083 (1170-2995)
Naphthalene, 1,2,3,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, (1S-cis)-		3 (0-3)	2058 (887-3229)
.alpha.-Caryophyllene			1759 (1036-2481)
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, acetate, (1S-endo)-			1333 (925-1741)
Decanal	9 (0-9)	46 (44-49)	838 (472-1203)
D-Limonene			1043 (675-1412)
Tricyclo[5.4.0.0(2,8)]undec-9-ene, 2,6,6,9-tetramethyl-			1014 (573-1455)
Naphthalene, 1,2,4a,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)-		4 (0-4)	903 (483-1323)
1R-.alpha.-Pinene			887 (576-1197)
Tetradecane		95 (25-165)	586 (246-926)
Nonanal		36 (34-38)	664 (470-858)
Propanoic acid, 2-methyl-			825 (629-1021)
Pentanamide			811 (647-976)
Cyclotrisiloxane, hexamethyl-	6 (0-6)	22 (14-29)	442 (313-571)
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, (1S-endo)-			766 (542-991)
Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-7-methyl-4-methylene-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)-			651 (340-962)
Bicyclo[2.2.1]heptan-2-ol, 1,3,3-trimethyl-			531 (354-707)
Benzenemethanol, .alpha.,.alpha.,4-trimethyl-			519 (362-677)
1,4-Methano-1H-indene, octahydro-4-methyl-8-methylene-7-(1-methylethyl)-, [1S-(1.alpha.,3a.beta.,4.alpha.,7.alpha.,7a.beta.)]-			508 (318-697)
Benzene, 1-methyl-2-(1-methylethyl)-			898 (0-898)
2-Oxabicyclo[2.2.2]octan-6-ol, 1,3,3-trimethyl-			430 (302-559)
Bicyclo[3.1.1]heptane, 6,6-dimethyl-2-methylene-, (1S)-			814 (0-814)
Benzyl Alcohol		7 (0-7)	189 (183-195)
Cyclotetrasiloxane, octamethyl-	5 (4-7)	11 (6-17)	240 (169-311)

Table 5. Average and (range) concentration of emitted compounds from fPLA analyzed at different temperatures.

Component	Average and (range) of concentrations (ng/l/g) of compounds emitted from PLA fibres tested at different temperatures	
	60 °C	105 °C
Caryophyllene		119 (41-196)

1,4-Methanoazulene, decahydro-4,8,8-trimethyl-9-methylene-, [1S-(1.alpha.,3a.beta.,4.alpha.,8a.beta.)]-	56 (15-97)	776(75-1477)
1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S-cis)- .alpha.-Caryophyllene	33 (31-35)	13716 (12301-15131)
Bicyclo[3.1.1]heptane, 6,6-dimethyl-2-methylene-, (1S)-		29(0-29)
Tricyclo[5.4.0.0(2,8)]undec-9-ene, 2,6,6,9-tetramethyl-		31(0-31)
Naphthalene, 1,2,3,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, (1S-cis)-	10 (0-10)	51(0-51)
.alpha.-Cubebene		29(0-29)
Tetradecane	103 (11-195)	86(0-86)
1-Butanol	282 (120-444)	403 (59-747)
Dodecane	36 (0-36)	962 (898-1027)
Propanoic acid, 2-methyl-		197 (53-341)
Benzene, 1-methyl-4-(1-methylethyl)-		56 (0-56)
Benzenemethanol, .alpha.,.alpha.,4-trimethyl-	6 (6-7)	24 (0-24)
Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-7-methyl-4-methylene-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)-		21(0-21)

Table 6. Average and (range) concentration of emitted compounds from fPLA1Ag analyzed at different temperatures.

Component	Average and (range) of concentrations (ng/l/g) of compounds emitted from PLA-Ag fibres tested at different temperatures	
	60 °C	105 °C
1,4-Methanoazulene, decahydro-4,8,8-trimethyl-9-methylene-, [1S-(1.alpha.,3a.beta.,4.alpha.,8a.beta.)]-		133 (0-133)
1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S-cis)-	86 (71-101)	24155 (23386-24925)
Tetradecane	145 (79-211)	3654 (1908-5399)
1-Butanol	646 (147-1145)	1835 (854-2816)
Dodecane	51 (0-51)	2937 (1615-4259)
2-Pyrrolidinone		3030 (2792-3268)

Table 7. Average and (range) concentration of emitted compounds from fPLA10 analyzed at different temperatures.

Component	Average and (range) of concentrations (ng/l/g) of compounds emitted from PLA-rosin fibres tested at different temperatures	
	60 °C	105 °C
Caryophyllene	90 (73-107)	215914 (136140-295689)
1,4-Methanoazulene, decahydro-4,8,8-trimethyl-9-methylene-, [1S-(1.alpha.,3a.beta.,4.alpha.,8a.beta.)]-	83 (67-99)	193568 (118229-268908)
p-menth-1-en-8-ol		82381 (48045-116717)
Copaene	12 (9-15)	43724 (23711-63736)
1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S-cis)-		6055 (0-6055)

.alpha.-Caryophyllene		36128 (18660-53596)
1S-.alpha.-Pinene	5 (0-5)	35163 (24633-45693)
Naphthalene, 1,2,4a,5,8,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, [1S-(1.alpha.,4a.beta.,8a.alpha.)]-	21 (0-21)	64868 (0-64868)
Bicyclo[3.1.1]heptane, 6,6-dimethyl-2-methylene-, (1S)-		29697 (19962-39433)
D-Limonene		23506 (15839-31173)
Tricyclo[5.4.0.0(2,8)]undec-9-ene, 2,6,6,9-tetramethyl-	6 (5-7)	23125 (12333-33918)
Naphthalene, 1,2,3,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, (1S-cis)-	24 (0-24)	20411 (17235-23588)
Cyclohexene, 1-methyl-4-(1-methylethylidene)-	10 (0-10)	19106 (12670-25542)
.alpha.-Cubebene		15565 (7268-23862)
Acetic acid		12781 (9427-16136)
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, acetate, (1S-endo)-		11711 (6206-17216)
Naphthalene, 1,2,4a,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)-	4 (0-4)	9640 (5227-14053)
Naphthalene, 1,2,4a,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-		8279 (2232-14326)
1,4-Methano-1H-indene, octahydro-4-methyl-8-methylene-7-(1-methylethyl)-, [1S-(1.alpha.,3a.beta.,4.alpha.,7.alpha.,7a.beta.)]-		6582 (3565-9598)
Bicyclo[2.2.1]heptan-2-ol, 1,3,3-trimethyl-		5871 (3264-8477)
Toluene		5175 (4433-5917)
Ylangene		4447 (2461-6432)
3-Isopropylbenzaldehyde	14 (0-14)	4399 (2504-6293)
Tetradecane	14 (13-16)	
1-Butanol	514 (100-928)	
Borneol		8408 (0-8408)
3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)-, (R)-		3740 (2140-5340)
Bicyclo[3.1.0]hex-3-en-2-ol, 2-methyl-5-(1-methylethyl)-, (1.alpha.,2.alpha.,5.alpha.)-		3722 (2557-4887)
Bicyclo[3.1.1]heptan-3-ol, 6,6-dimethyl-2-methylene-, [1S-(1.alpha.,3.alpha.,5.alpha.)]-		3334 (1833-4834)
(+)-Epi-bicyclosesquiphellandrene		6390 (0-6390)
Dodecane		
Cyclohexene, 6-ethenyl-6-methyl-1-(1-methylethyl)-3-(1-methylethylidene)-, (S)-		3065(1873-4257)
Propanoic acid, 2-methyl-	11 (0-11)	2999(1358-4639)
Benzene, 1-methyl-4-(1-methylethyl)-	5 (0-5)	2691(224-5157)
Benzenemethanol, .alpha.,.alpha.,4-trimethyl-	7 (0-7)	2591(1316-3866)
1H-Cyclopropa[a]naphthalene, 1a,2,3,5,6,7,7a,7b-octahydro-1,1,7,7a-tetramethyl-, [1aR-(1a.alpha.,7.alpha.,7a.alpha.,7b.alpha.)]-		2550(1431-3670)
Bicyclo[3.1.1]hept-2-ene-2-methanol, 6,6-dimethyl-		4607(0-4607)
Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-7-methyl-4-methylene-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)-		2287(1241-3334)

Methyl Isobutyl Ketone		2207(1690-2724)
Anisole, p-allyl-		3896(0-3896)
1H-Benzocycloheptene, 2,4a,5,6,7,8-hexahydro-3,5,5,9-tetramethyl-, (R)-		1936(1143-2729)
Benzene, 1-methoxy-4-(1-propenyl)-		3570 (0-3570)
1,6,10-Dodecatriene, 7,11-dimethyl-3-methylene-, (E)-		1766 (951-2581)
3-Cyclopentene-1-acetaldehyde, 2,2,3-trimethyl-		1750 (932-2568)
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, (1S-endo)-		3168 (0-3168)
.alpha.-Phellandrene		1560 (1119-2001)
Cyclobuta[1,2:3,4]dicyclopentene, decahydro-3a-methyl-6-methylene-1-(1-methylethyl)-, [1S-(1.alpha.,3a.alpha.,3b.beta.,6a.beta.,6b.alpha.)		1395 (753-2038)
Eucalyptol		1317 (839-1796)