

Use Trends of Biopesticides: Pounds Applied

Text files of data are available at <<https://files.cdpr.ca.gov/pub/outgoing/pur/data/>>. The reported pounds of chemicals used that are biopesticides. Biopesticides include microorganisms and naturally occurring compounds, or compounds similar to those found in nature that are not toxic to the target pest (such as pheromones). Use includes both agricultural and reportable nonagricultural applications. The word "none" or "N/A" indicates no use at all that year. Values > 1 are rounded.

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
(3s, 6r)-3-methyl-6-isopropenyl-9-decen-1-yl acetate	N/A	<1	N/A	<1	N/A	<1	12	148	65	50
(3s, 6s)-3-methyl-6-isopropenyl-9-decen-1-yl acetate	N/A	<1	N/A	<1	N/A	<1	12	148	65	50
(e)-4-tridecen-1-yl acetate	N/A	N/A	N/A	23	N/A	N/A	N/A	<1	<1	<1
(e)-5-decen-1-ol	N/A	<1	<1	<1	1	8	2	2	45	51
(e)-5-decenol	<1	2	3	1	33	8	95	5	6	2
(e)-5-decenyl acetate	2	10	7	4	25	134	99	63	746	839
(e,e)-9, 11-tetradecadien-1-yl acetate	6	3	4	3	3	1	12	2	<1	<1
(e,z)-7,9-dodecadien-1-yl acetate	249	270	24	24	N/A	N/A	N/A	N/A	N/A	N/A
(s)-kinoprene	191	300	285	311	429	327	253	378	531	478
(s)-verbenone	N/A	55	N/A	N/A	781	633	28	5	26	593
(z)-11-hexadecen-1-yl acetate	1	N/A	N/A	N/A	N/A	<1	98	34	30	92
(z)-11-hexadecenal	N/A	N/A	N/A	N/A	1	1	98	33	19	92
(z)-4-tridecen-1-yl acetate	N/A	N/A	N/A	1	N/A	N/A	N/A	<1	3	6
(z)-9-dodecenyl acetate	<1	<1	<1	<1	<1	N/A	N/A	N/A	N/A	N/A

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
(z,e)-7,11-hexadecadien-1-yl acetate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1
(z,z)-11,13-hexadecadienal	571	271	321	619	969	1,072	1,086	1,404	1,846	1,511
(z,z)-7,11-hexadecadien-1-yl acetate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1
1,4-dimethylnaphthalene	544	893	1,163	1,085	891	660	133	836	379	274
1,7-dioxaspiro-(5,5)-undecane	<1	<1	1	<1	1	N/A	N/A	N/A	N/A	N/A
1-methylcyclopropene	<1	1	1	<1	1	1	1	1	1	<1
1-naphthaleneacetamide	20	20	19	22	18	14	11	17	11	11
2,4-decadienoic acid, ethyl ester, (2e,4z)-	N/A	N/A	N/A	<1	4	3	3	2	1	48
2-methyl-1-butanol	N/A	N/A	<1	<1	<1	<1	1	<1	1	1
3,13 octadecadien-1-yl acetate	12	N/A	<1	N/A	<1	142	N/A	N/A	N/A	N/A
3,7-dimethyl-6-octen-1-ol	12	28	54	42	49	72	95	98	70	62
acetic acid	73	601	43	62	20,806	9,111	5,357	4,248	1,508	2,007
agrobacterium radiobacter	919	28	230	271	137	2,561	64	59	248	49
agrobacterium radiobacter, strain k1026	<1	<1	34	<1	<1	<1	N/A	N/A	N/A	N/A
allyl isothiocyanate	N/A	<1	N/A	N/A	N/A	<1	N/A	N/A	<1	N/A
almond, bitter	<1	<1	<1	<1	<1	N/A	<1	<1	<1	<1
amino ethoxy vinyl glycine hydrochloride	1,194	1,368	1,444	1,757	2,011	1,380	1,296	2,532	2,983	3,003
ammonium bicarbonate	14	7	51	34	42	N/A	N/A	N/A	N/A	<1
ammonium nitrate	52,072	66,531	86,008	88,037	91,564	89,252	86,912	78,360	84,599	80,329
ammonium nonanoate	N/A	N/A	1,937	3,131	3,399	27,356	19,625	17,272	5,421	8,618

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
aspergillus flavus strain af36	<1	4	4	8	9	14	15	16	18	20
aureobasidium pullulans strain dsm 14940	N/A	N/A	81	458	356	1,095	2,493	3,956	2,794	2,353
aureobasidium pullulans strain dsm 14941	N/A	N/A	81	458	356	1,095	2,493	3,956	2,794	2,353
azadirachtin	2,404	4,193	3,387	4,323	5,108	4,774	4,884	4,424	4,581	6,185
bacillus amyloliquefaciens strain d747	N/A	869	84,957	177,589	131,298	209,773	395,706	272,746	298,243	229,435
bacillus amyloliquefaciens strain mbi 600	N/A	<1	<1	N/A	N/A	15	79	275	699	1,300
bacillus firmus (strain i-1582)	N/A	N/A	N/A	42	190	170	212	160	33	28
bacillus mycoides isolate j	N/A	N/A	N/A	N/A	N/A	N/A	1,085	568	531	423
bacillus popilliae	N/A	N/A	<1	<1	<1	<1	N/A	<1	N/A	N/A
bacillus pumilus, strain qst 2808	7,571	6,771	6,249	7,957	8,123	7,890	9,239	7,552	7,706	10,147
bacillus sphaericus 2362, serotype h5a5b, strain abts 1743 fermentation solids, spores and insecticidal toxins	10,602	9,123	10,500	10,499	12,357	13,122	16,362	10,812	11,726	10,246
bacillus subtilis gb03	<1	1	1	2	3	3	4	3	3	2
bacillus subtilis strain iab/bs03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5	48	18
bacillus subtilis var. amyloliquefaciens strain fzb24	N/A	2	94	119	178	6	<1	N/A	N/A	N/A
bacillus thuringiensis (berliner)	26	18	11	4	29	21	14	17	8	13

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
bacillus thuringiensis (berliner), subsp. aizawai, gc-91 protein	11,666	17,042	13,265	18,776	16,771	18,882	34,178	45,073	54,344	58,210
bacillus thuringiensis (berliner), subsp. aizawai, serotype h-7	814	714	359	333	184	73	118	48	548	43
bacillus thuringiensis (berliner), subsp. israelensis, serotype h-14	17,167	6,028	2,588	4,932	6,633	5,829	5,957	5,563	8,430	5,867
bacillus thuringiensis (berliner), subsp. kurstaki strain sa-12	4,700	10,361	8,311	7,971	8,579	9,804	2,218	563	336	379
bacillus thuringiensis (berliner), subsp. kurstaki, serotype 3a,3b	244	234	53	41	18	34	76	91	27	4
bacillus thuringiensis (berliner), subsp. kurstaki, strain eg 2348	478	44	500	514	344	645	396	8	<1	<1
bacillus thuringiensis (berliner), subsp. kurstaki, strain eg2371	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
bacillus thuringiensis (berliner), subsp. kurstaki, strain sa-11	115,695	52,424	78,064	80,401	80,958	74,963	96,414	119,097	116,440	142,747
bacillus thuringiensis (berliner), subsp. san diego	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	N/A
bacillus thuringiensis subspecies kurstaki strain bmp 123	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
bacillus thuringiensis subspecies kurstaki, genetically engineered strain eg7841 lepidopteran active toxin	75	298	116	65	3	43	3	1	2,503	14,065
bacillus thuringiensis var. kurstaki strain m-200	N/A	N/A	N/A	N/A	<1	N/A	<1	1	<1	N/A
bacillus thuringiensis var. kurstaki, genetically engineered strain eg7826	N/A	528	N/A	N/A	N/A	7	N/A	15	N/A	N/A
bacillus thuringiensis, subsp. aizawai, strain abts-1857	24,321	30,649	29,863	49,186	55,914	72,261	92,931	88,725	118,022	129,569
bacillus thuringiensis, subsp. aizawai, strain sd-1372, lepidopteran active toxin(s)	88	1	18	6	43	13	6	16	2	1
bacillus thuringiensis, subsp. israelensis, strain am 65-52	58,261	179,756	56,363	49,610	55,727	80,137	73,504	75,322	66,789	674,560
bacillus thuringiensis, subsp. kurstaki, strain abts-351, fermentation solids and solubles	83,214	95,440	83,415	111,388	95,487	117,902	134,880	121,702	160,867	132,202
bacillus thuringiensis, subsp. kurstaki, strain hd-1	2,573	3,187	2,323	1,928	1,860	186	111	13	24	16

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
bacillus thuringiensis, var. kurstaki delta endotoxins cry 1a(c) and cry 1c (genetically engineered) encapsulated in pseudomonas fluorescens (killed)	<1	4	N/A	<1	N/A	<1	N/A	5	N/A	<1
bacteriophage active against xanthomonas campestris pv. vesicatoria and pseudomonas syringae pv. tomato	<1	<1	<1	<1	N/A	N/A	<1	N/A	<1	<1
bacteriophages active against xylella fastidiosa	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1
balsam fir oil	N/A	<1	<1	<1	1	<1	N/A	<1	<1	N/A
beauveria bassiana hf 23	N/A	N/A	N/A	N/A	N/A	37	55	67	70	78
beauveria bassiana strain gha	622	1,221	1,796	2,749	3,514	2,850	5,690	7,040	6,211	6,989
beta-conglutin	N/A	N/A	N/A	N/A	6,762	6,099	7,383	4,314	2,968	4,819
buffalo gourd root powder	N/A	1	25	5	6	8	3	73	33	7
burkholderia sp strain a396 cells and fermentation media	N/A	N/A	N/A	2,829	58,593	53,655	115,528	216,387	412,580	552,281
butyl mercaptan	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
calcium salts of phosphorous acid	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
canola oil	26	15	28	61	97	247	286	2,177	2,833	3,051
capsicum oleoresin	4	12	10	27	92	125	203	635	409	419
carbon dioxide	21,239	42,612	21,186	18,297	17,675	25,366	26,359	36,307	73,226	38,421
castor oil	<1	2	<1	8	<1	4	N/A	3	N/A	15

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
chenopodium ambrosioides near ambrosioides	7,897	10,231	20,267	17,504	12,828	10,207	8,300	387	186	85
chromobacterium subtsugae strain praa4-1	N/A	1,169	30,262	46,419	45,917	31,445	36,395	42,933	38,976	37,351
cinnamaldehyde	1	N/A	N/A	N/A	N/A	N/A	59	1	N/A	4,032
citric acid	92,556	94,969	128,806	114,940	126,174	142,111	136,398	152,412	166,066	178,010
clarified hydrophobic extract of neem oil	71,739	78,007	119,298	197,351	222,748	166,062	173,113	138,380	139,316	199,227
codling moth granulosus virus	<1	<1	<1	<1	<1	<1	<1	<1	<1	1
coniothyrium minitans strain con/m/91-08	176	245	611	641	786	657	665	424	216	543
corn syrup	4,377	4,766	3,216	3,344	4,342	4,850	14,787	22,773	18,268	16,146
cottonseed oil	318,868	114,610	105,083	132,464	87,451	55,082	45,678	35,072	39,589	16,873
coyote urine	1	2	3	9	6	3	6	3	3	3
cytokinin (as kinetin)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
diallyl disulfide	N/A	N/A	N/A	N/A	N/A	103	94	N/A	N/A	26
dihydro-5-heptyl-2(3h)-furanone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
dihydro-5-pentyl-2(3h)-furanone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
e,e-8,10-dodecadien-1-ol	1,376	1,995	2,276	1,395	1,445	1,079	5,420	1,209	863	1,214
e-11-tetradecen-1-yl acetate	172	133	142	61	73	32	295	40	8	12
e-8-dodecenyl acetate	195	283	273	224	769	390	1,714	271	322	538
encapsulated delta endotoxin of bacillus thuringiensis var. kurstaki in killed pseudomonas fluorescens	1	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
essential oils	<1	1	<1	15	12	20	24	11	7	1
ethylene	1,018	954	1,359	1,333	1,683	1,299	1,248	953	1,021	892

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
eucalyptus oil	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
eugenol	N/A	1	<1	1	<1	1	<1	<1	N/A	N/A
farnesol	5	11	21	17	20	29	38	39	28	25
fenugreek	5	8	2	1	7	N/A	<1	10	<1	<1
ferric sodium edta	1,979	6,351	5,855	6,790	8,000	12,449	12,329	8,118	8,568	5,866
fish oil	1,657	5,466	4,114	N/A	N/A	1,078	N/A	N/A	N/A	2,561
formic acid	241	634	66	337	2,606	1,243	984	1,647	352	6,568
fox urine	<1	2	1	4	3	1	4	2	1	1
gamma aminobutyric acid	40	133	42	15	15	N/A	N/A	N/A	N/A	N/A
garlic	29	1,905	2,832	1,392	667	849	529	1,127	1,098	1,556
geraniol	12	28	54	42	49	72	95	98	70	62
german cockroach pheromone	<1	<1	<1	<1	N/A	<1	<1	<1	<1	N/A
gibberellins	23,717	24,216	41,418	27,422	27,409	23,142	27,104	28,657	25,410	29,013
gibberellins, potassium salt	<1	5	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A
gliocladium virens gl-21 (spores)	649	1,957	3,538	2,989	4,586	4,395	2,829	2,707	1,218	136
glutamic acid	40	133	42	15	15	N/A	N/A	N/A	N/A	N/A
gs-omega/kappa-hxtx-hv1a (versitide peptide)	N/A	N/A	N/A	N/A	N/A	<1	N/A	3	22	1,422
harpin protein	11	1	1	<1	N/A	<1	<1	N/A	N/A	N/A
heptyl butyrate	<1	<1	14	6	4	3	13	4	28	12
hydrogen peroxide	59,387	36,310	47,239	49,826	74,419	130,417	312,065	355,410	460,445	563,474
hydroprene	11,261	3,948	7,352	5,734	6,456	3,920	3,155	2,935	4,249	2,665
iba	9	12	15	14	13	10	19	17	29	31
indole	N/A	N/A	<1	N/A	<1	<1	<1	<1	<1	<1
iron hedta	N/A	43	92	120	91	170	213	113	157	185
iron phosphate	2,874	2,327	2,119	2,007	2,071	2,250	3,482	2,837	3,208	3,541
kaolin	1,686,874	2,014,970	2,473,768	2,854,542	3,411,740	3,591,408	3,193,218	3,270,212	2,723,538	2,956,177
kinoprene	9	3	8	33	17	10	1	<1	<1	2
lactic acid	N/A	N/A	N/A	N/A	2	3	12	10	15	19
lactose	9,374	6,554	7,143	6,616	7,855	8,501	8,889	7,959	8,192	7,379

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
lagenidium giganteum (california strain)	N/A	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
lauryl alcohol	497	755	449	293	501	319	2,566	309	230	437
lavandulyl senecioate	6,120	586	477	3,166	507	1,035	1,312	2,282	4,188	3,322
limonene	62,925	74,369	61,334	68,137	72,906	67,550	92,320	106,974	56,867	57,167
linalool	95	136	72	62	93	15	11	2	1	<1
margosa oil	7,886	9,106	12,189	22,585	26,019	32,493	25,061	13,756	41,100	38,846
menthol	<1	N/A	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A
metarhizium anisopliae strain f52	N/A	116	89	121	20	54	2	1	1	<1
metarhizium anisopliae, var. anisopliae, strain esf1	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
methoprene	1,809	1,304	1,350	3,556	1,390	1,271	1,064	764	801	1,681
methyl anthranilate	448	300	1,237	634	672	789	1,118	958	1,208	1,388
methyl eugenol	5	N/A	9	N/A	N/A	126	386	1,149	1,138	500
methyl nonyl ketone	N/A	N/A	<1	<1	<1	<1	<1	1	<1	<1
methyl salicylate	N/A	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A	N/A
muscalure	15	16	13	17	23	29	44	60	18	14
muscodor albus strain sa13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	270
myristyl alcohol	102	155	91	60	102	65	520	63	47	89
myrothecium verrucaria, dried fermentation solids & solubles, strain aarc-0255	27,757	25,556	26,005	17,675	30,810	26,033	22,923	23,021	21,639	22,057
n6-benzyl adenine	129	168	183	184	230	221	161	198	477	364
naa	4	9	15	12	18	11	100	11	14	20
naa, ammonium salt	839	1,400	1,056	945	996	125	181	335	249	257
naa, ethyl ester	23	4	3	5	3	38	10,502	13,162	13,844	7,899
naa, potassium salt	N/A	N/A	53	15	2	934	1,017	607	613	599
naa, sodium salt	N/A	N/A	2	1	<1	<1	N/A	N/A	1	N/A
natamycin	N/A	N/A	<1	1	1	1	<1	N/A	96	288
nerolidol	12	28	54	42	49	72	95	98	70	62
nitrogen, liquefied	216	74	594	6	N/A	N/A	N/A	N/A	N/A	N/A

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
nonanoic acid	17,939	18,200	21,545	17,530	14,482	13,301	14,610	12,755	12,352	13,718
nonanoic acid, other related	944	958	1,134	923	762	700	769	671	649	722
nosema locustae spores	<1	1	<1	<1	<1	1	<1	<1	N/A	<1
oil of anise	<1	<1	<1	<1	<1	<1	<1	<1	<1	N/A
oil of black pepper	<1	<1	1	1	<1	<1	<1	<1	<1	<1
oil of cedarwood	N/A	N/A	N/A	N/A	<1	<1	N/A	N/A	N/A	N/A
oil of citronella	46	N/A	N/A	1	5	<1	1	<1	1	1
oil of jojoba	1,232	507	135	376	44	19	2	N/A	12	N/A
oil of lemon eucalyptus	<1	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
oil of orange	N/A	N/A	N/A	N/A	198	386	1,360	479	487	506
oxypurinol	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1
paecilomyces fumosoroseus apopka strain 97	N/A	508	3,302	5,951	5,631	8,947	8,659	5,100	8,344	8,646
pantoea agglomerans strain e325, nrri b-21856	1	1	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
phenylethyl propionate	423	535	701	712	185	96	140	34	20	15
phosphoric acid, monopotassium salt	9,079	3,927	1,918	374	9,585	15,002	11,445	10,125	3,350	275
piperine	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
polyhedral occlusion bodies (ob's) of the nuclear polyhedrosis virus of helicoverpa zea (corn earworm)	51	6	1	2	4	20	41	41	22	32
polyoxin d, zinc salt	3,519	4,738	6,731	7,412	8,613	10,308	10,655	11,455	13,146	11,798
potassium bicarbonate	358,917	229,238	239,909	223,547	318,119	462,830	489,086	350,400	470,446	313,648
potassium phosphite	279,964	281,901	390,547	708,940	666,757	952,554	1,167,494	1,205,221	1,652,628	1,408,033
potassium silicate	1,412	988	5,407	23,582	36,525	25,901	33,039	13,821	28,004	51,209
potassium sorbate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3
propylene glycol	50,584	60,679	86,335	90,353	87,138	91,155	103,909	108,383	122,404	103,480

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
propyleneglycol monolaurate	N/A	N/A	203	44	N/A	N/A	N/A	N/A	N/A	N/A
pseudomonas chlororaphis subsp. aurantiaca strain afs009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3,387
pseudomonas fluorescens, strain a506	274	59	92	270	87	123	111	113	66	38
pseudomonas syringae, strain esc-10	N/A	N/A	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
purpureocillium lilacinum strain 251	515	840	4,073	5,031	6,408	6,273	5,474	3,817	2,939	3,417
putrescent whole egg solids	1	1	1	1	1	6	5	6	2	6
pythium oligandrum dv74	<1	<1	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
qst 713 strain of dried bacillus subtilis	23,965	23,645	24,605	20,969	20,919	21,063	21,952	21,291	25,520	18,972
quillaja	1,081	785	1,040	775	829	1,027	1,385	1,452	1,636	1,257
reynoutria sachalinensis	14,844	14,803	15,355	16,105	18,362	23,508	23,644	20,091	23,150	23,759
s-abscisic acid	1,854	2,651	2,131	2,382	2,114	2,192	2,220	1,861	1,856	1,222
s-methoprene	2,313	2,324	2,331	2,524	2,781	3,220	3,133	4,077	11,691	4,094
sawdust	N/A	4	4	N/A	N/A	1	N/A	N/A	N/A	<1
sesame oil	1,327	15	<1	N/A	N/A	N/A	N/A	2	N/A	N/A
silver nitrate	<1	<1	N/A	N/A	N/A	<1	<1	N/A	<1	<1
sodium bicarbonate	515	179	44	479	420	13,604	3,679	3	N/A	1
sodium carbonate peroxyhydrate	298,763	300,693	295,762	463,448	244,233	261,347	165,621	329,252	276,474	277,896
sodium chloride	169	111	119	211	216	128	81	110	147	82
sodium lauryl sulfate	458	884	431	570	1,749	507	1,200	1,334	1,148	1,223
sorbitol octanoate	35	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
soybean oil	24,109	22,065	45,973	59,297	69,771	84,295	80,999	82,753	70,316	70,928
streptomyces griseoviridis strain k61	<1	<1	10	11	18	5	4	2	1	<1

Chemical	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
streptomyces lydicus wyc 108	1	2	3	3	3	4	3	2	3	2
sucrose octanoate	230	55	188	98	203	29	7	N/A	N/A	N/A
sugar	448	1,240	51	16	60	667	4	20	775	120
thyme	665	844	1,135	1,150	257	122	181	25	11	9
thyme oil	N/A	N/A	N/A	N/A	1	3	12	7	7	3
thymol	265	181	398	314	278	570	564	679	162	435
trichoderma harzianum rifai strain krl-ag2	129	158	186	86	65	112	64	86	95	80
trichoderma icc 012 asperellum	13	19	43	2	2	9	4	1	32	24
trichoderma icc 080 gamsii	13	19	43	2	2	9	4	1	32	24
trimethylamine	N/A	N/A	<1	N/A	<1	<1	<1	<1	<1	<1
ulocladium oudemansii (u3 strain)	N/A	N/A	29	792	516	155	34	2,131	1,444	836
vanillin	1	1	<1	<1	1	N/A	<1	2	<1	<1
vegetable oil	514,884	276,278	315,218	267,446	485,628	517,951	665,971	828,425	669,353	580,636
xanthine	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1
yeast	1,165	818	80	32	86	14	4	12	<1	<1
yucca schidigera	1,649	7,147	12,327	5,652	2,565	3,130	2,173	5,733	6,806	4,935
z,e-9,12-tetradecadien-1-yl acetate	7	6	14	122	20	10	21	62	159	20
z-11-tetradecen-1-yl acetate	4	8	8	<1	<1	<1	<1	<1	<1	<1
z-8-dodecenol	34	48	44	38	98	60	201	47	52	93
z-8-dodecenyl acetate	3,010	4,005	3,467	3,248	4,461	4,300	6,479	4,157	4,035	8,202
Total	4,439,952	4,320,493	5,090,982	6,167,978	6,883,247	7,690,030	8,119,184	8,399,943	8,648,306	9,209,139