

Numbers of Benzenoids and Fusenes

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In this note we want to announce the number of fusenes (or polyhexes) with up to 26 hexagons and benzenoids (or planar polyhexes) with up to 24 hexagons. The method used to obtain the structures can in short be described as interpreting the structures as labelled inner duals and applying the homomorphism principle to this representation. Details will appear elsewhere. On a modern PC tens of millions of non-isomorphic structures per second can be generated and even hundreds of millions if the structures are only to be counted and determined *implicitly* and not to be constructed explicitly.

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hexagons	fusenes	benzenoids
1	1	1
2	1	1
3	3	3
4	7	7
5	22	22
6	82	81
7	339	331
8	1 505	1 435
9	7 036	6 505
10	33 836	30 086
11	166 246	141 229
12	829 987	669 584
13	4 197 273	3 198 256
14	21 456 444	15 367 577
15	110 716 585	74 207 910
16	576 027 737	359 863 778
17	3 018 986 040	1 751 594 643
18	15 927 330 105	8 553 649 747
19	84 530 870 455	41 892 642 772
20	451 069 339 063	205 714 411 986
21	2 418 927 725 532	1 012 565 172 403
22	13 030 938 290 472	4 994 807 695 197
23	70 492 771 581 350	24 687 124 900 540
24	382 816 374 644 336	122 238 208 783 203
25	2 086 362 209 298 079	
26	11 408 580 755 666 756	