

Resuspending Samples in Analytical Ultracentrifugation

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Supplementary Material: Description of Parts

The mixing device was constructed using LEGO® bricks (Billund, Denmark) for the ease of prototyping and disseminating construction capabilities. LEGO® bricks are well known for use in science education^{1–4}, and they have also found numerous applications in engineering^{5,6}, dentistry⁷, imaging^{8–10}, and scientific instrumentation as size standards^{10–12}, for flexible and robust open-source fabrication of optomechanical or microfluidic elements^{13–15}, and for their optical, thermal, or magnetic material properties^{6,8,16,17}. The mixer was build using standard motor and gear bricks listed in the following table. Drawings of the assembly can be found in the separate Lego Digital Designer (lxf) file, which allows interactive viewing and virtual disassembly of the model.

Supplementary References

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Parts List

Part Name	# of pieces	Lego Part #
6 x 16 plate	2	3027
6 x 14 plate	6	3456
8 x 4 plate	1	3035
2 x 8 plate	3	3034
2 x 12 plate	3	2445
2 x 10 plate	2	3832
2 x 6 plate	3	3795
4 x 10 plate	1	3030
4 x 4 plate	3	3031
6 x 4 plate	2	3032
2 x 2 plate	1	3022
2 x 3 plate	1	3021
2 x 2 brick	2	3003
1 x 8 brick	2	3008
1 x 10 brick	2	6111
1 x 2 x 5 brick	4	2454
1 x 1 x 3 brick	2	14716
1 x 2 x 3 brick	2	22886
2 x 6 x 2 brick (weight)	1	73090b
2 x 2 dome top brick	2	553
1 x 8 brick (technic)	11	3702
1 x 10 brick (technic)	1	2730
1 x 4 brick (technic)	2	3701
1 x 14 brick (technic)	1	32018
1 x 12 brick (technic)	1	3895
4 x 6 brick open center (technic)	2	40344
power functions battery box	1	84599
power functions motor (medium)	2	8883-1
power functions IR remote	1	64227c01
power functons reciever	1	58123bc01
1 x 15 technic beam	2	32278
1 x 3 technic axle	2	4519
1 x 6 technic axle	1	3706
1 x 11 technic axle	1	23948
1 x 4 technic axle	3	3705
1 x 9 techinc axle	3	60485
1 x 3 technic axle (stopper)	3	24316
1 x 8 technic axle (stopper)	12	55013
axle extenders	12	5003135-1
1/2 bushings	20	5003119-1

cam wheel technic	3	991333-1
axle notched	2	32062
8 tooth gear (type 2)	30	10928
24 tooth gear (type 2)	1	3648
16 tooth gear (type 2)	1	94925
40 tooth gear	4	3649
axle pin without friction	16	3749
pin with friction	1	4459
pin without friction	2	3673
pin without friction (3L)	1	32556
1/2 pin	2	4274