Full wwPDB EM Validation Report ⓘ

Feb 27, 2025 – 05:43 PM EST

PDB ID	:	9BP5
EMDB ID	:	EMD-44761
Title	:	Structure of electron bifurcating Nfn-ABC holoenzyme from Caldicellulosiruptor saccharolyticus
Authors	:	Li, H.; Li, H.
Deposited on	:	2024-05-07
Resolution	:	2.70 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

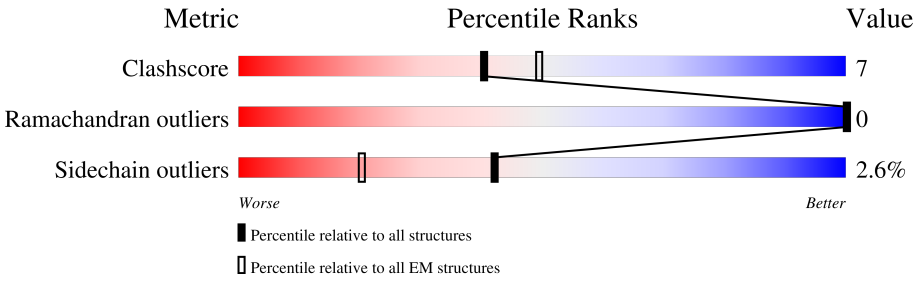
EMDB validation analysis	:	0.0.1.dev117
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.41.4

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 2.70 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1178	83% 17%
1	D	1178	84% 16%
1	G	1178	84% 15%
1	J	1178	85% 15%
2	B	584	77% 23%
2	E	584	78% 21%
2	H	584	77% 22%
2	K	584	76% 23%

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Mol	Chain	Length	Quality of chain
3	C	176	68% 20% 12%
3	F	176	66% 22% 12%
3	I	176	71% 17% 12%
3	L	176	72% 16% 12%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	SF4	H	602	-	-	X	-

2 Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 59656 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Molybdopterin oxidoreductase.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1178	Total	C	N	O	S	0	0
			9098	5742	1568	1730	58		
1	D	1178	Total	C	N	O	S	0	0
			9098	5742	1568	1730	58		
1	G	1178	Total	C	N	O	S	0	0
			9098	5742	1568	1730	58		
1	J	1178	Total	C	N	O	S	0	0
			9098	5742	1568	1730	58		

- Molecule 2 is a protein called NADH dehydrogenase (Quinone).

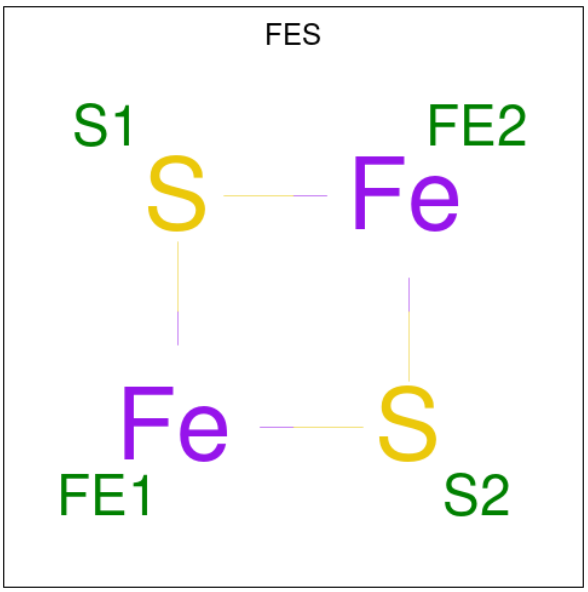
Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	584	Total	C	N	O	S	0	0
			4431	2795	759	834	43		
2	E	584	Total	C	N	O	S	0	0
			4431	2795	759	834	43		
2	H	584	Total	C	N	O	S	0	0
			4431	2795	759	834	43		
2	K	584	Total	C	N	O	S	0	0
			4431	2795	759	834	43		

- Molecule 3 is a protein called NADH dehydrogenase (Ubiquinone), 24 kDa subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	155	Total	C	N	O	S	0	0
			1219	775	201	234	9		
3	F	155	Total	C	N	O	S	0	0
			1219	775	201	234	9		
3	I	155	Total	C	N	O	S	0	0
			1219	775	201	234	9		
3	L	155	Total	C	N	O	S	0	0
			1219	775	201	234	9		

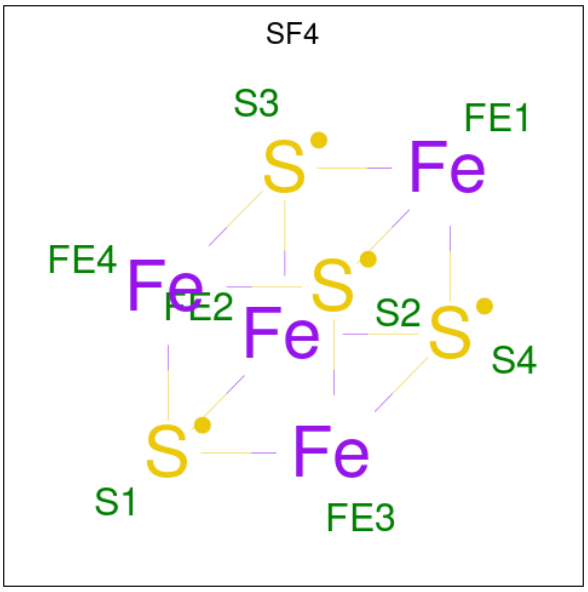
- Molecule 4 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2)

(labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
4	A	1	Total Fe S 4 2 2	0
4	C	1	Total Fe S 4 2 2	0
4	D	1	Total Fe S 4 2 2	0
4	F	1	Total Fe S 4 2 2	0
4	G	1	Total Fe S 4 2 2	0
4	I	1	Total Fe S 4 2 2	0
4	J	1	Total Fe S 4 2 2	0
4	L	1	Total Fe S 4 2 2	0

- Molecule 5 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe_4S_4) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
5	A	1	Total Fe S 8 4 4	0
5	A	1	Total Fe S 8 4 4	0
5	A	1	Total Fe S 8 4 4	0
5	A	1	Total Fe S 8 4 4	0
5	A	1	Total Fe S 8 4 4	0
5	A	1	Total Fe S 8 4 4	0
5	B	1	Total Fe S 8 4 4	0
5	B	1	Total Fe S 8 4 4	0
5	B	1	Total Fe S 8 4 4	0
5	D	1	Total Fe S 8 4 4	0
5	D	1	Total Fe S 8 4 4	0
5	D	1	Total Fe S 8 4 4	0
5	D	1	Total Fe S 8 4 4	0
5	D	1	Total Fe S 8 4 4	0

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Mol	Chain	Residues	Atoms	AltConf
5	D	1	Total Fe S 8 4 4	0
5	E	1	Total Fe S 8 4 4	0
5	E	1	Total Fe S 8 4 4	0
5	E	1	Total Fe S 8 4 4	0
5	G	1	Total Fe S 8 4 4	0
5	G	1	Total Fe S 8 4 4	0
5	G	1	Total Fe S 8 4 4	0
5	G	1	Total Fe S 8 4 4	0
5	G	1	Total Fe S 8 4 4	0
5	G	1	Total Fe S 8 4 4	0
5	H	1	Total Fe S 8 4 4	0
5	H	1	Total Fe S 8 4 4	0
5	H	1	Total Fe S 8 4 4	0
5	J	1	Total Fe S 8 4 4	0
5	J	1	Total Fe S 8 4 4	0
5	J	1	Total Fe S 8 4 4	0
5	J	1	Total Fe S 8 4 4	0
5	J	1	Total Fe S 8 4 4	0
5	J	1	Total Fe S 8 4 4	0
5	K	1	Total Fe S 8 4 4	0
5	K	1	Total Fe S 8 4 4	0

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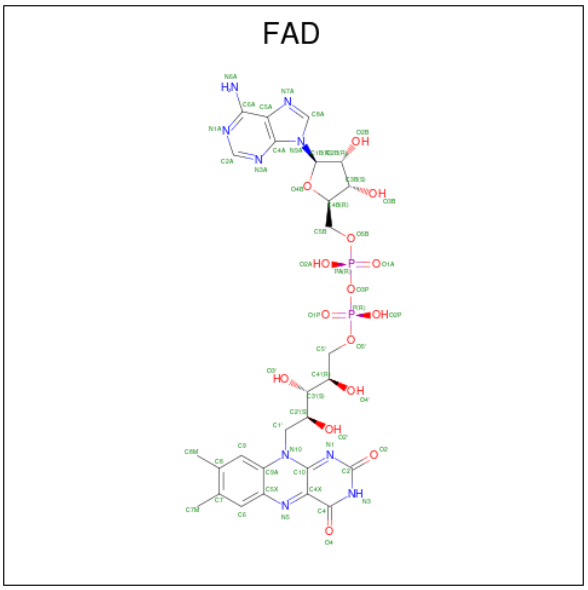
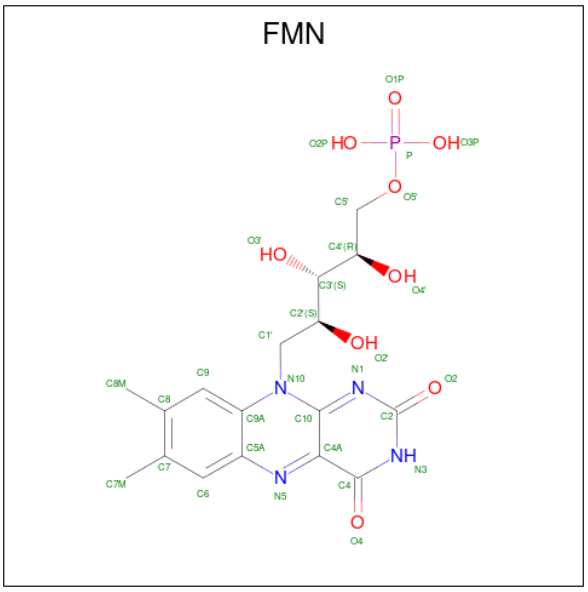
Mol	Chain	Residues	Atoms			AltConf
5	K	1	Total	Fe	S	0
			8	4	4	

- Molecule 6 is FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
6	A	1	Total	C	N	O	P	0
			53	27	9	15	2	
6	D	1	Total	C	N	O	P	0
			53	27	9	15	2	
6	G	1	Total	C	N	O	P	0
			53	27	9	15	2	
6	J	1	Total	C	N	O	P	0
			53	27	9	15	2	

- Molecule 7 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: $C_{17}H_{21}N_4O_9P$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
7	B	1	Total	C	N	O	P	0
			31	17	4	9	1	
7	E	1	Total	C	N	O	P	0
			31	17	4	9	1	
7	H	1	Total	C	N	O	P	0
			31	17	4	9	1	
7	K	1	Total	C	N	O	P	0
			31	17	4	9	1	

- Molecule 8 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

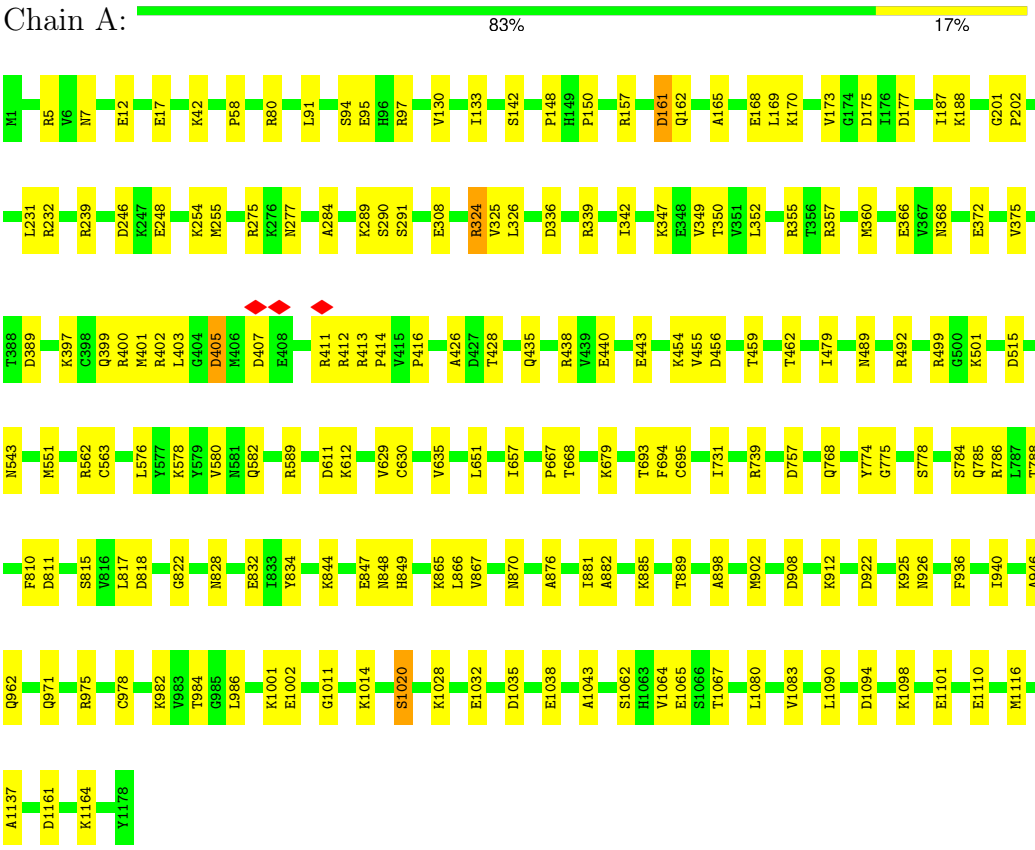
Mol	Chain	Residues	Atoms		AltConf
8	B	2	Total	Zn	0
			2	2	
8	E	2	Total	Zn	0
			2	2	
8	H	2	Total	Zn	0
			2	2	
8	K	2	Total	Zn	0
			2	2	

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

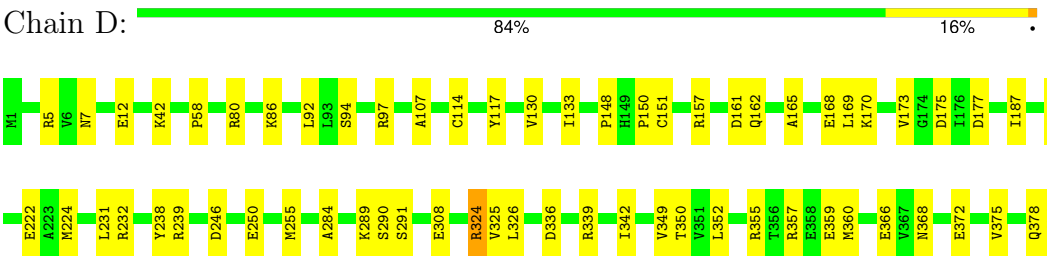
• Molecule 1: Molybdopterin oxidoreductase

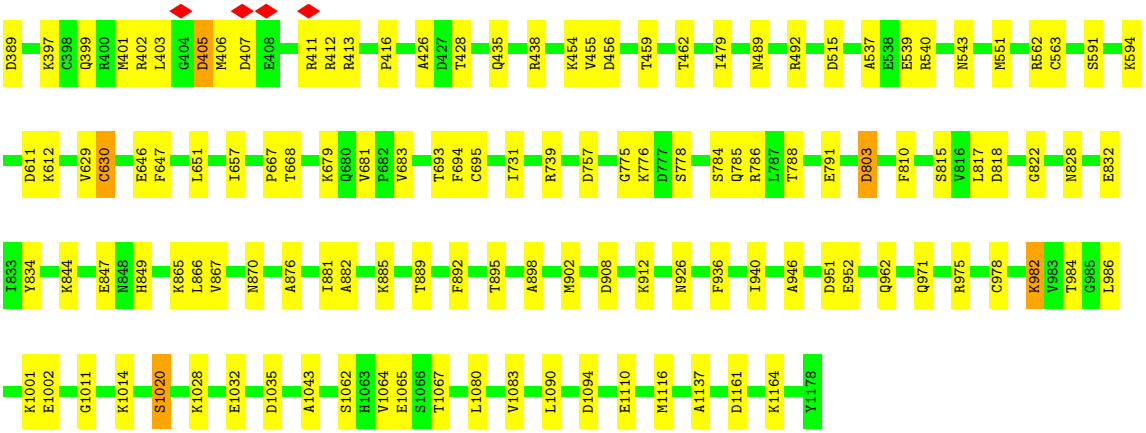
Chain A:



• Molecule 1: Molybdopterin oxidoreductase

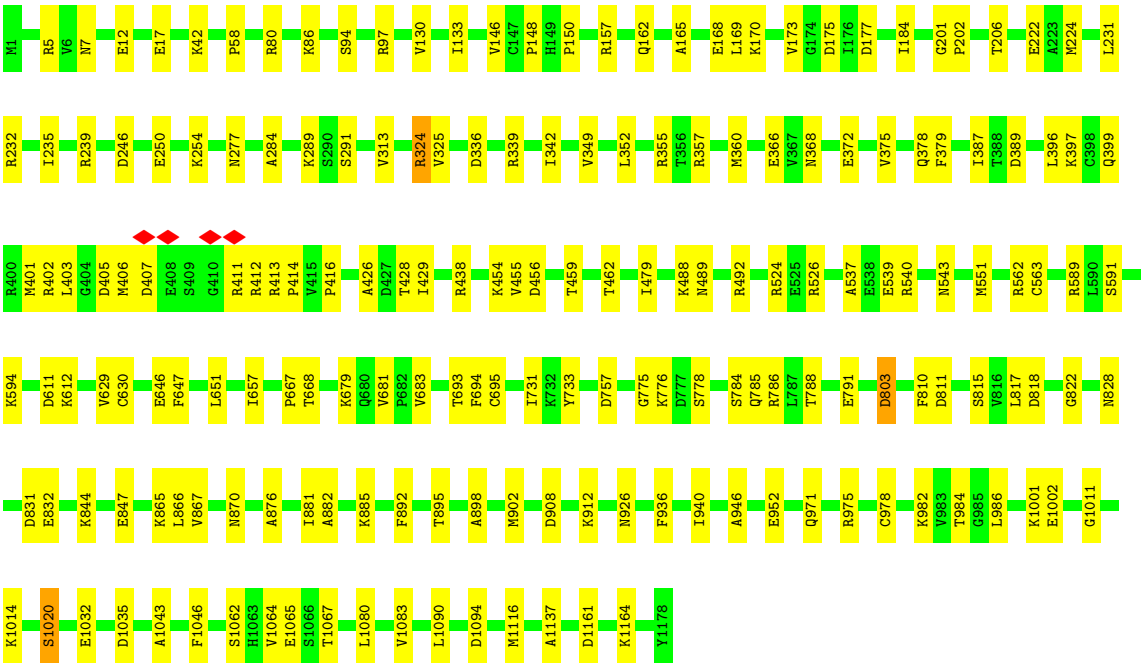
Chain D:





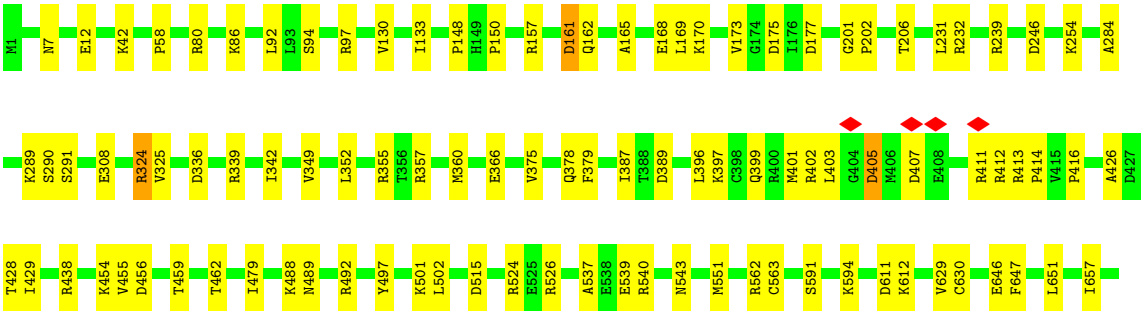
• Molecule 1: Molybdopterin oxidoreductase

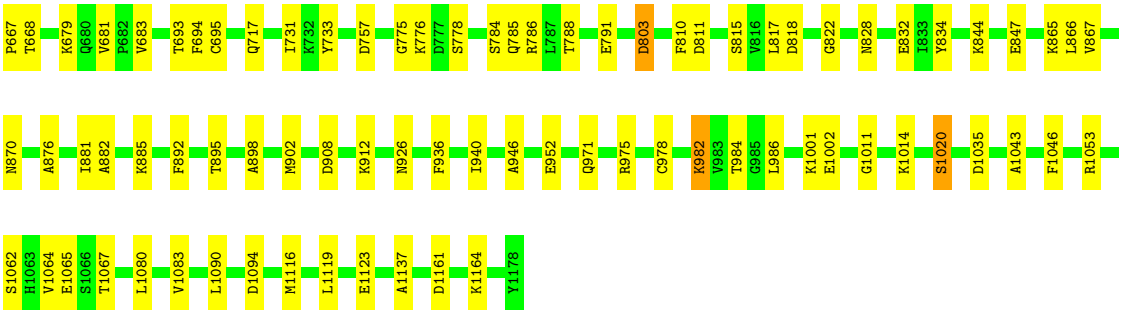
Chain G:



• Molecule 1: Molybdopterin oxidoreductase

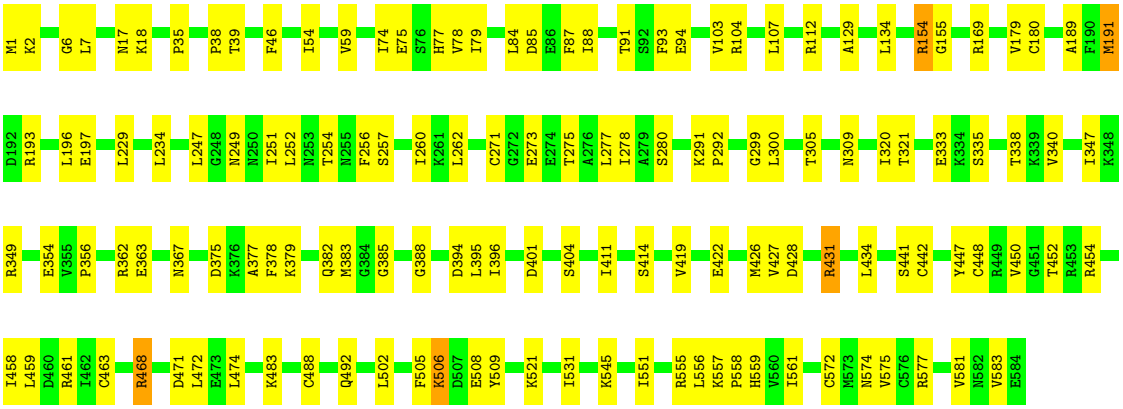
Chain J:





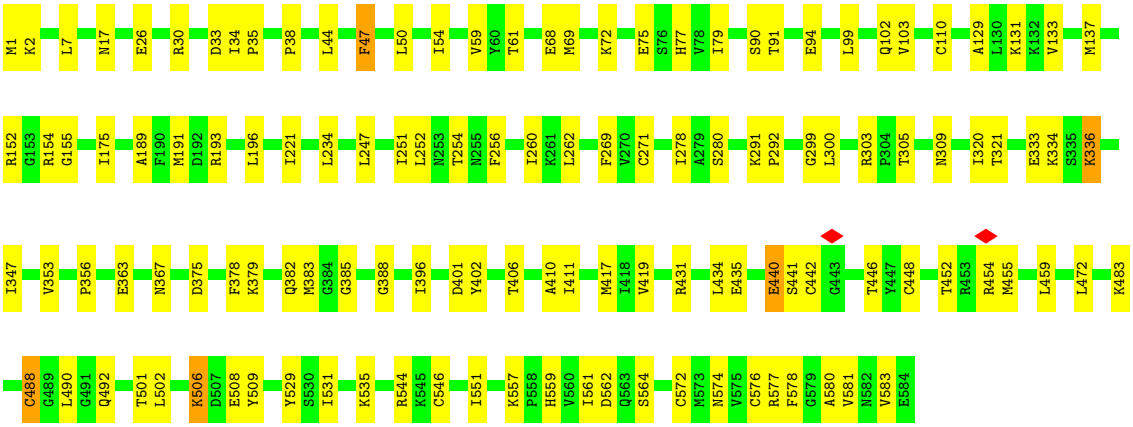
• Molecule 2: NADH dehydrogenase (Quinone)

Chain B:



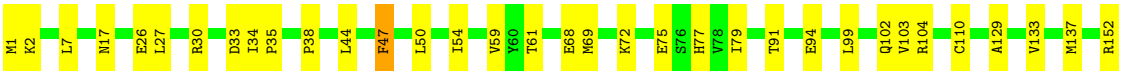
• Molecule 2: NADH dehydrogenase (Quinone)

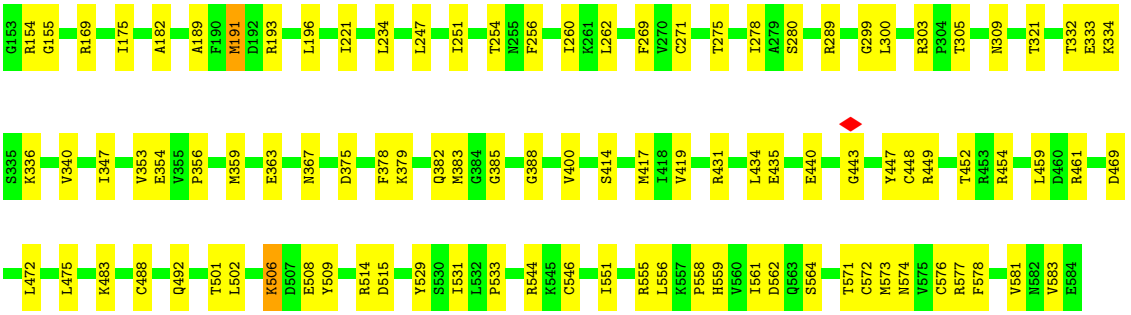
Chain E:



• Molecule 2: NADH dehydrogenase (Quinone)

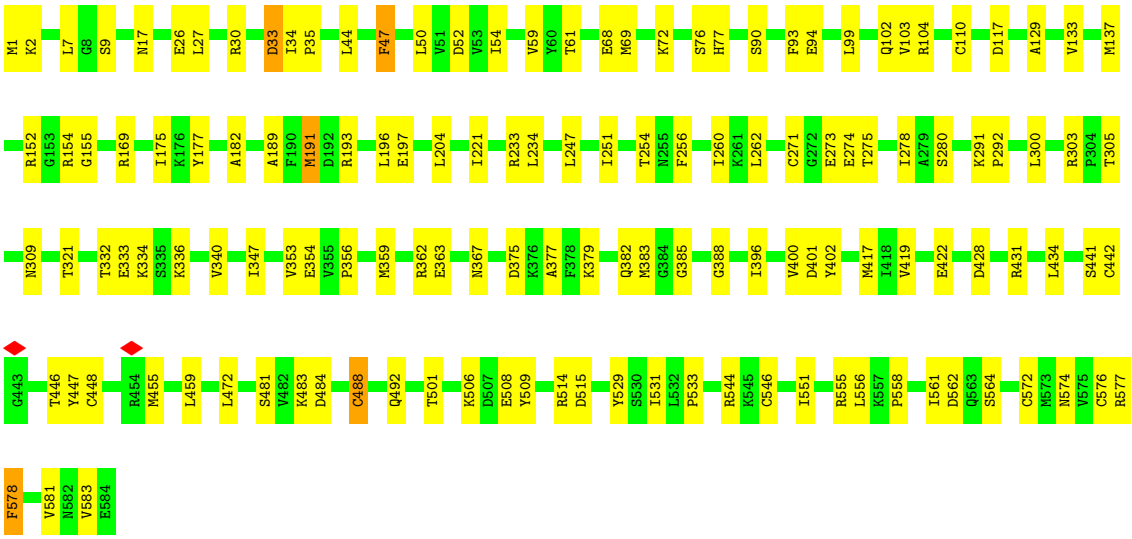
Chain H:





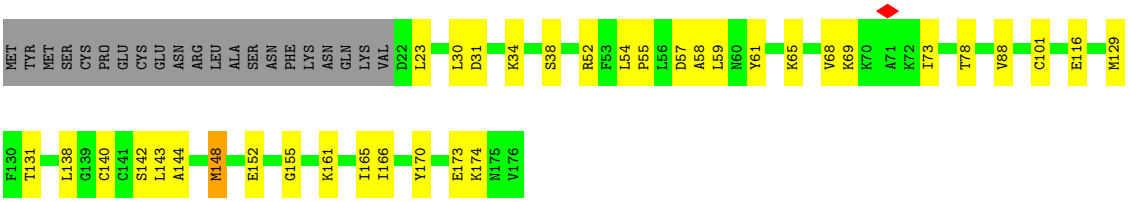
• Molecule 2: NADH dehydrogenase (Quinone)

Chain K:



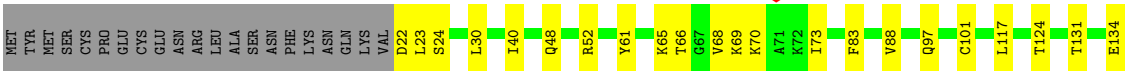
• Molecule 3: NADH dehydrogenase (Ubiquinone), 24 kDa subunit

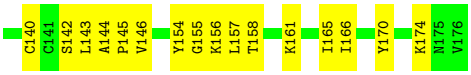
Chain C:



• Molecule 3: NADH dehydrogenase (Ubiquinone), 24 kDa subunit

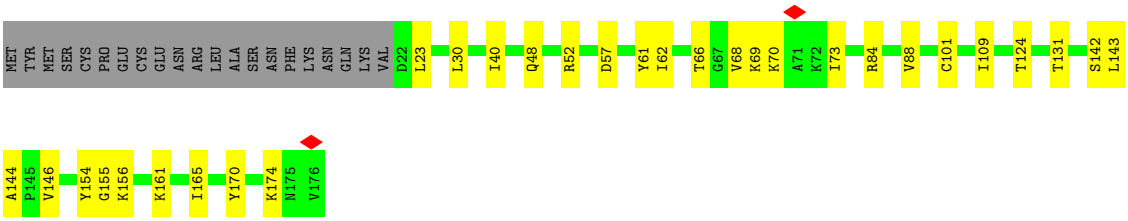
Chain F:





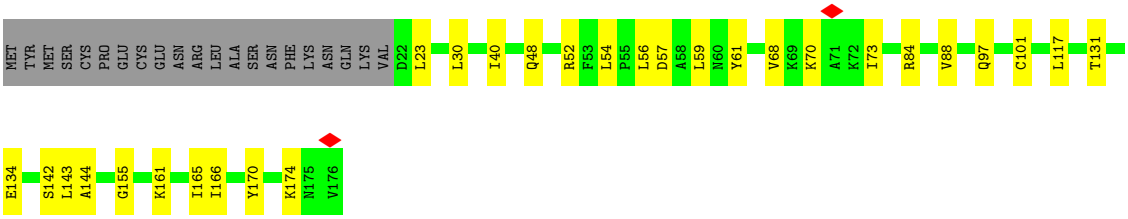
• Molecule 3: NADH dehydrogenase (Ubiquinone), 24 kDa subunit

Chain I:



• Molecule 3: NADH dehydrogenase (Ubiquinone), 24 kDa subunit

Chain L:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D2	Depositor
Number of particles used	108700	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	1600	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.729	Depositor
Minimum map value	-0.056	Depositor
Average map value	0.014	Depositor
Map value standard deviation	0.036	Depositor
Recommended contour level	0.1	Depositor
Map size (Å)	397.44, 397.44, 397.44	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.828, 0.828, 0.828	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: FES, ZN, FAD, SF4, FMN

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.30	0/9232	0.49	0/12461
1	D	0.30	0/9232	0.49	0/12461
1	G	0.30	0/9232	0.49	0/12461
1	J	0.30	0/9232	0.49	0/12461
2	B	0.30	0/4508	0.48	0/6077
2	E	0.29	0/4508	0.48	0/6077
2	H	0.29	0/4508	0.49	0/6077
2	K	0.28	0/4508	0.48	0/6077
3	C	0.28	0/1237	0.47	0/1666
3	F	0.27	0/1237	0.46	0/1666
3	I	0.27	0/1237	0.46	0/1666
3	L	0.26	0/1237	0.45	0/1666
All	All	0.29	0/59908	0.49	0/80816

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	9098	0	9278	116	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	9098	0	9278	113	0
1	G	9098	0	9278	105	0
1	J	9098	0	9278	106	0
2	B	4431	0	4480	79	0
2	E	4431	0	4480	77	0
2	H	4431	0	4480	76	0
2	K	4431	0	4480	79	0
3	C	1219	0	1240	19	0
3	F	1219	0	1240	23	0
3	I	1219	0	1240	17	0
3	L	1219	0	1240	18	0
4	A	4	0	0	0	0
4	C	4	0	0	0	0
4	D	4	0	0	0	0
4	F	4	0	0	0	0
4	G	4	0	0	0	0
4	I	4	0	0	0	0
4	J	4	0	0	0	0
4	L	4	0	0	0	0
5	A	48	0	0	1	0
5	B	24	0	0	2	0
5	D	48	0	0	1	0
5	E	24	0	0	2	0
5	G	48	0	0	1	0
5	H	24	0	0	4	0
5	J	48	0	0	1	0
5	K	24	0	0	1	0
6	A	53	0	31	4	0
6	D	53	0	31	4	0
6	G	53	0	31	4	0
6	J	53	0	31	4	0
7	B	31	0	19	0	0
7	E	31	0	19	3	0
7	H	31	0	19	0	0
7	K	31	0	19	1	0
8	B	2	0	0	0	0
8	E	2	0	0	0	0
8	H	2	0	0	0	0
8	K	2	0	0	0	0
All	All	59656	0	60192	811	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

All (811) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:383:MET:O	2:K:388:GLY:HA3	1.75	0.86
2:H:383:MET:O	2:H:388:GLY:HA3	1.77	0.84
2:E:383:MET:O	2:E:388:GLY:HA3	1.78	0.81
1:G:407:ASP:HB3	1:G:413:ARG:HB2	1.65	0.79
1:A:407:ASP:HB3	1:A:413:ARG:HB2	1.69	0.73
2:B:557:LYS:HE3	2:B:558:PRO:HD2	1.70	0.73
1:D:401:MET:HG2	1:D:416:PRO:HA	1.70	0.73
1:A:401:MET:HG2	1:A:416:PRO:HA	1.71	0.73
2:E:572:CYS:HB3	2:E:581:VAL:HG11	1.72	0.72
1:G:401:MET:HG2	1:G:416:PRO:HA	1.70	0.71
1:J:401:MET:HG2	1:J:416:PRO:HA	1.71	0.70
1:A:768:GLN:HE22	1:G:313:VAL:HA	1.55	0.70
1:D:239:ARG:NH2	6:D:1208:FAD:O4	2.21	0.70
2:K:572:CYS:HB3	2:K:581:VAL:HG11	1.72	0.70
1:G:828:ASN:ND2	1:G:832:GLU:OE1	2.20	0.70
1:A:239:ARG:NH2	6:A:1208:FAD:O4	2.22	0.70
1:D:407:ASP:HB3	1:D:413:ARG:HB2	1.74	0.70
2:E:269:PHE:HB3	2:E:440:GLU:CD	2.12	0.69
1:D:94:SER:HB3	2:E:454:ARG:HH21	1.57	0.69
1:J:289:LYS:HB2	1:J:438:ARG:HG2	1.75	0.68
1:G:289:LYS:HB2	1:G:438:ARG:HG2	1.76	0.68
1:A:828:ASN:ND2	1:A:832:GLU:OE1	2.22	0.68
2:E:379:LYS:NZ	2:E:508:GLU:OE2	2.27	0.68
1:J:407:ASP:HB3	1:J:413:ARG:HB2	1.73	0.68
1:A:289:LYS:HB2	1:A:438:ARG:HG2	1.75	0.68
1:D:289:LYS:HB2	1:D:438:ARG:HG2	1.75	0.67
1:G:403:LEU:HB3	1:G:412:ARG:HG2	1.76	0.67
2:H:379:LYS:NZ	2:H:508:GLU:OE2	2.28	0.67
2:H:254:THR:HG23	2:H:256:PHE:H	1.60	0.66
1:A:499:ARG:HB3	1:A:501:LYS:HE3	1.77	0.66
2:H:574:ASN:O	2:H:577:ARG:NH1	2.27	0.66
2:B:134:LEU:HD12	2:B:252:LEU:HD12	1.77	0.66
2:K:254:THR:HG23	2:K:256:PHE:H	1.60	0.66
2:K:379:LYS:NZ	2:K:508:GLU:OE2	2.29	0.66
2:H:129:ALA:HB2	2:H:321:THR:HG23	1.78	0.66
2:B:254:THR:HG23	2:B:256:PHE:H	1.59	0.66
2:H:531:ILE:HD12	2:H:561:ILE:HG12	1.79	0.65
1:J:828:ASN:ND2	1:J:832:GLU:OE1	2.23	0.65
1:D:403:LEU:HB3	1:D:412:ARG:HG3	1.79	0.65
2:E:531:ILE:HD12	2:E:561:ILE:HG12	1.79	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:91:THR:HG23	2:E:94:GLU:H	1.62	0.64
1:J:1035:ASP:OD1	1:J:1053:ARG:NH2	2.30	0.64
2:E:131:LYS:HG3	2:E:252:LEU:HD21	1.77	0.64
2:B:428:ASP:OD1	2:B:431:ARG:NH1	2.31	0.64
2:E:129:ALA:HB2	2:E:321:THR:HG23	1.80	0.64
2:K:129:ALA:HB2	2:K:321:THR:HG23	1.80	0.64
1:D:828:ASN:ND2	1:D:832:GLU:OE1	2.23	0.63
1:D:406:MET:SD	1:D:406:MET:N	2.72	0.63
1:G:1011:GLY:O	1:G:1014:LYS:NZ	2.32	0.63
1:G:7:ASN:ND2	1:G:12:GLU:OE1	2.31	0.63
2:H:2:LYS:HG3	2:H:35:PRO:HB2	1.80	0.63
2:E:254:THR:HG23	2:E:256:PHE:H	1.62	0.63
2:B:129:ALA:HB2	2:B:321:THR:HG23	1.81	0.63
1:D:7:ASN:ND2	1:D:12:GLU:OE1	2.31	0.62
1:D:1011:GLY:O	1:D:1014:LYS:NZ	2.32	0.62
2:K:332:THR:O	2:K:336:LYS:NZ	2.32	0.62
1:J:7:ASN:ND2	1:J:12:GLU:OE1	2.32	0.62
1:J:403:LEU:HB3	1:J:412:ARG:HG3	1.80	0.62
2:K:434:LEU:HD12	2:K:459:LEU:HD12	1.82	0.62
2:B:434:LEU:HD12	2:B:459:LEU:HD12	1.80	0.62
1:J:97:ARG:HB2	1:J:611:ASP:HB3	1.82	0.62
1:A:7:ASN:ND2	1:A:12:GLU:OE1	2.32	0.62
2:E:431:ARG:NH1	2:E:435:GLU:OE1	2.33	0.62
1:G:239:ARG:NH2	6:G:1208:FAD:O4	2.21	0.61
1:J:239:ARG:NH2	6:J:1208:FAD:O4	2.21	0.61
2:E:574:ASN:O	2:E:577:ARG:NH1	2.32	0.61
2:K:273:GLU:OE1	2:K:275:THR:N	2.33	0.61
1:A:1011:GLY:O	1:A:1014:LYS:NZ	2.33	0.61
2:E:154:ARG:NH2	2:E:336:LYS:O	2.33	0.61
2:B:379:LYS:NZ	2:B:508:GLU:OE2	2.33	0.61
2:K:574:ASN:O	2:K:577:ARG:NH1	2.32	0.60
7:E:601:FMN:O4'	7:E:601:FMN:O2'	2.13	0.60
1:A:97:ARG:HB2	1:A:611:ASP:HB3	1.82	0.60
2:K:2:LYS:HG3	2:K:35:PRO:HB2	1.83	0.60
2:H:572:CYS:HB3	2:H:581:VAL:HG11	1.83	0.60
2:E:434:LEU:HD12	2:E:459:LEU:HD12	1.84	0.60
2:E:26:GLU:OE2	2:E:30:ARG:NH2	2.34	0.60
2:H:448:CYS:HB2	5:H:602:SF4:S1	2.42	0.60
2:B:340:VAL:HG22	2:B:354:GLU:HG3	1.82	0.60
1:G:162:GLN:O	1:G:562:ARG:NH2	2.35	0.60
2:H:26:GLU:OE2	2:H:30:ARG:NH2	2.34	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2:LYS:HG3	2:B:35:PRO:HB2	1.82	0.59
1:G:97:ARG:HB2	1:G:611:ASP:HB3	1.84	0.59
2:H:133:VAL:HA	2:H:137:MET:HB2	1.83	0.59
1:D:97:ARG:HB2	1:D:611:ASP:HB3	1.83	0.59
2:K:340:VAL:HG22	2:K:354:GLU:HG3	1.85	0.59
2:E:2:LYS:HG3	2:E:35:PRO:HB2	1.84	0.59
2:H:91:THR:HG23	2:H:94:GLU:H	1.68	0.59
2:E:269:PHE:HB3	2:E:440:GLU:OE2	2.03	0.59
2:H:7:LEU:HD12	2:H:38:PRO:HB3	1.85	0.59
2:B:54:ILE:HG12	2:B:59:VAL:HG22	1.84	0.58
2:E:133:VAL:HA	2:E:137:MET:HB2	1.84	0.58
1:J:162:GLN:O	1:J:562:ARG:NH2	2.36	0.58
2:K:133:VAL:HA	2:K:137:MET:HB2	1.84	0.58
2:E:7:LEU:HD12	2:E:38:PRO:HB3	1.85	0.58
1:J:971:GLN:O	1:J:975:ARG:NH1	2.34	0.58
2:K:562:ASP:OD1	2:K:564:SER:OG	2.21	0.58
3:C:68:VAL:HB	3:C:73:ILE:HD11	1.84	0.58
1:G:971:GLN:O	1:G:975:ARG:NH1	2.34	0.58
1:A:162:GLN:O	1:A:562:ARG:NH2	2.36	0.58
2:B:196:LEU:HD22	2:B:234:LEU:HD11	1.86	0.57
2:E:278:ILE:HG23	2:E:300:LEU:HD23	1.86	0.57
2:K:428:ASP:OD1	2:K:431:ARG:NH1	2.37	0.57
1:A:94:SER:HB3	2:B:454:ARG:HH21	1.68	0.57
1:D:162:GLN:O	1:D:562:ARG:NH2	2.36	0.57
3:F:161:LYS:O	3:F:165:ILE:HG12	2.05	0.57
1:G:1090:LEU:HD22	1:G:1094:ASP:HB3	1.85	0.57
2:K:177:TYR:HB2	2:K:305:THR:HG22	1.85	0.57
2:B:382:GLN:NE2	2:B:385:GLY:O	2.38	0.57
1:G:591:SER:O	2:H:454:ARG:NH1	2.38	0.57
1:J:1090:LEU:HD22	1:J:1094:ASP:HB3	1.85	0.57
2:H:332:THR:O	2:H:336:LYS:NZ	2.33	0.57
2:H:443:GLY:HA2	2:H:449:ARG:HG3	1.86	0.57
1:J:539:GLU:O	1:J:543:ASN:ND2	2.38	0.57
1:D:1090:LEU:HD22	1:D:1094:ASP:HB3	1.85	0.57
1:A:539:GLU:O	1:A:543:ASN:ND2	2.38	0.57
1:A:1090:LEU:HD22	1:A:1094:ASP:HB3	1.85	0.57
2:B:572:CYS:HB3	2:B:581:VAL:HG11	1.85	0.57
2:B:7:LEU:HD12	2:B:38:PRO:HB3	1.87	0.56
2:B:448:CYS:HB2	5:B:602:SF4:S1	2.44	0.56
2:E:247:LEU:HD21	2:E:260:ILE:HD12	1.87	0.56
2:K:382:GLN:NE2	2:K:385:GLY:O	2.37	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:271:CYS:HG	2:E:280:SER:HG	1.52	0.56
1:G:539:GLU:O	1:G:543:ASN:ND2	2.39	0.56
2:K:26:GLU:OE2	2:K:30:ARG:NH2	2.39	0.56
2:H:555:ARG:HH12	2:H:556:LEU:HG	1.69	0.56
1:D:629:VAL:HG21	1:D:657:ILE:HG12	1.87	0.56
1:J:1011:GLY:O	1:J:1014:LYS:NZ	2.33	0.56
2:B:93:PHE:HB2	2:B:94:GLU:OE2	2.06	0.56
2:K:54:ILE:HG12	2:K:59:VAL:HG22	1.88	0.56
2:B:448:CYS:O	2:B:452:THR:OG1	2.20	0.56
1:D:539:GLU:O	1:D:543:ASN:ND2	2.39	0.56
3:F:23:LEU:HD11	3:F:61:TYR:CG	2.41	0.56
3:I:161:LYS:O	3:I:165:ILE:HG12	2.06	0.56
1:J:629:VAL:HG21	1:J:657:ILE:HG12	1.88	0.56
3:L:117:LEU:HD21	3:L:166:ILE:HG21	1.87	0.56
3:L:23:LEU:HD11	3:L:61:TYR:CG	2.41	0.55
1:G:629:VAL:HG21	1:G:657:ILE:HG12	1.88	0.55
1:G:946:ALA:O	1:G:978:CYS:HA	2.06	0.55
1:A:629:VAL:HG21	1:A:657:ILE:HG12	1.88	0.55
3:I:23:LEU:HD11	3:I:61:TYR:CG	2.41	0.55
2:K:278:ILE:HG23	2:K:300:LEU:HD23	1.86	0.55
1:D:489:ASN:OD1	1:D:492:ARG:NH2	2.40	0.55
1:A:456:ASP:OD1	1:A:459:THR:OG1	2.24	0.54
1:A:971:GLN:O	1:A:975:ARG:NH1	2.34	0.54
2:E:54:ILE:HG12	2:E:59:VAL:HG22	1.89	0.54
1:G:489:ASN:OD1	1:G:492:ARG:NH2	2.40	0.54
2:H:247:LEU:HD21	2:H:260:ILE:HD12	1.88	0.54
1:A:489:ASN:OD1	1:A:492:ARG:NH2	2.39	0.54
1:D:822:GLY:HA3	1:D:1137:ALA:HB3	1.90	0.54
1:G:693:THR:OG1	1:G:786:ARG:NH1	2.40	0.54
2:H:278:ILE:HG23	2:H:300:LEU:HD23	1.88	0.54
1:A:407:ASP:OD1	1:A:407:ASP:N	2.40	0.54
2:B:461:ARG:NH2	2:B:471:ASP:OD2	2.37	0.54
1:A:822:GLY:HA3	1:A:1137:ALA:HB3	1.90	0.54
2:B:155:GLY:HA2	2:B:414:SER:HA	1.89	0.54
1:A:693:THR:OG1	1:A:786:ARG:NH1	2.40	0.54
1:D:971:GLN:O	1:D:975:ARG:NH1	2.34	0.54
1:D:693:THR:OG1	1:D:786:ARG:NH1	2.40	0.54
2:E:68:GLU:O	2:E:72:LYS:NZ	2.41	0.54
3:I:101:CYS:HA	3:I:144:ALA:HB1	1.89	0.54
1:J:489:ASN:OD1	1:J:492:ARG:NH2	2.40	0.54
2:K:247:LEU:HD21	2:K:260:ILE:HD12	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:822:GLY:HA3	1:J:1137:ALA:HB3	1.90	0.54
2:K:555:ARG:HH12	2:K:556:LEU:HG	1.72	0.54
2:B:91:THR:HG23	2:B:94:GLU:H	1.72	0.54
1:D:407:ASP:OD1	1:D:407:ASP:N	2.40	0.54
1:G:456:ASP:OD1	1:G:459:THR:OG1	2.26	0.54
2:H:382:GLN:NE2	2:H:385:GLY:O	2.41	0.54
2:K:221:ILE:HB	2:K:262:LEU:HD23	1.90	0.54
1:D:150:PRO:HD2	5:D:1205:SF4:S2	2.48	0.53
1:G:822:GLY:HA3	1:G:1137:ALA:HB3	1.90	0.53
1:J:693:THR:OG1	1:J:786:ARG:NH1	2.41	0.53
3:F:101:CYS:HA	3:F:144:ALA:HB1	1.89	0.53
2:H:434:LEU:HD12	2:H:459:LEU:HD12	1.91	0.53
1:J:405:ASP:O	1:J:413:ARG:N	2.24	0.53
3:F:40:ILE:HD13	3:F:68:VAL:HG21	1.90	0.53
1:G:844:LYS:HB3	1:G:847:GLU:HB2	1.91	0.53
2:H:33:ASP:OD1	2:H:33:ASP:N	2.41	0.53
2:H:68:GLU:O	2:H:72:LYS:NZ	2.41	0.53
1:J:456:ASP:OD1	1:J:459:THR:OG1	2.27	0.53
2:B:502:LEU:O	2:B:506:LYS:NZ	2.42	0.53
1:D:1062:SER:OG	1:D:1065:GLU:OE2	2.25	0.53
2:K:94:GLU:N	2:K:94:GLU:OE2	2.42	0.53
3:L:40:ILE:HD13	3:L:68:VAL:HG21	1.90	0.53
3:F:117:LEU:HD21	3:F:166:ILE:HG21	1.90	0.53
2:K:155:GLY:HA3	2:K:309:ASN:HD22	1.74	0.53
1:D:867:VAL:HG22	1:D:882:ALA:HB3	1.89	0.53
2:E:562:ASP:OD1	2:E:564:SER:OG	2.26	0.53
1:J:844:LYS:HB3	1:J:847:GLU:HB2	1.91	0.53
1:J:867:VAL:HG22	1:J:882:ALA:HB3	1.89	0.53
2:K:33:ASP:OD1	2:K:33:ASP:N	2.41	0.53
1:A:1062:SER:OG	1:A:1065:GLU:OE2	2.25	0.53
3:C:23:LEU:HD11	3:C:61:TYR:CG	2.44	0.53
3:L:161:LYS:O	3:L:165:ILE:HG12	2.09	0.53
1:A:232:ARG:NH2	1:A:246:ASP:OD1	2.35	0.53
2:B:179:VAL:HG11	2:B:277:LEU:HD21	1.91	0.53
2:B:521:LYS:HD2	2:B:583:VAL:HG13	1.91	0.53
1:D:403:LEU:HB3	1:D:412:ARG:CG	2.39	0.53
1:D:1067:THR:HA	1:D:1080:LEU:O	2.09	0.53
3:L:101:CYS:HA	3:L:144:ALA:HB1	1.91	0.53
1:G:1067:THR:HA	1:G:1080:LEU:O	2.09	0.52
1:D:232:ARG:NH2	1:D:246:ASP:OD1	2.35	0.52
2:H:54:ILE:HG12	2:H:59:VAL:HG22	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:815:SER:OG	1:G:818:ASP:OD1	2.25	0.52
1:A:844:LYS:HB3	1:A:847:GLU:HB2	1.91	0.52
1:G:867:VAL:HG22	1:G:882:ALA:HB3	1.90	0.52
2:H:340:VAL:HG22	2:H:354:GLU:HG3	1.90	0.52
2:K:273:GLU:OE1	2:K:274:GLU:N	2.42	0.52
1:D:456:ASP:OD1	1:D:459:THR:OG1	2.27	0.52
2:K:93:PHE:HB2	2:K:94:GLU:OE2	2.09	0.52
2:K:154:ARG:NH2	2:K:336:LYS:O	2.39	0.52
1:A:867:VAL:HG22	1:A:882:ALA:HB3	1.90	0.52
1:J:339:ARG:NH1	1:J:366:GLU:OE2	2.42	0.52
2:E:189:ALA:HB1	2:E:191:MET:SD	2.50	0.52
2:H:189:ALA:HB1	2:H:191:MET:SD	2.50	0.52
2:H:472:LEU:HD21	2:H:509:TYR:HB3	1.92	0.52
2:B:472:LEU:HD21	2:B:509:TYR:HB3	1.91	0.52
2:H:562:ASP:OD1	2:H:564:SER:OG	2.27	0.52
2:E:47:PHE:HB3	2:E:50:LEU:HD21	1.92	0.52
2:E:347:ILE:HD13	2:E:419:VAL:HG21	1.92	0.52
1:G:246:ASP:O	1:G:250:GLU:HG3	2.10	0.52
2:H:431:ARG:NH1	2:H:435:GLU:OE1	2.42	0.51
3:I:40:ILE:HD13	3:I:68:VAL:HG21	1.91	0.51
1:D:844:LYS:HB3	1:D:847:GLU:HB2	1.92	0.51
1:G:1062:SER:OG	1:G:1065:GLU:OE2	2.25	0.51
2:K:68:GLU:O	2:K:72:LYS:NZ	2.43	0.51
1:A:1067:THR:HA	1:A:1080:LEU:O	2.10	0.51
1:D:246:ASP:O	1:D:250:GLU:HG3	2.10	0.51
2:E:378:PHE:HE2	2:E:396:ILE:HD12	1.76	0.51
1:G:201:GLY:HA3	6:G:1208:FAD:H52A	1.93	0.51
1:J:201:GLY:HA3	6:J:1208:FAD:H52A	1.93	0.51
1:J:946:ALA:O	1:J:978:CYS:HA	2.11	0.51
2:E:382:GLN:NE2	2:E:385:GLY:O	2.44	0.51
1:G:407:ASP:N	1:G:407:ASP:OD1	2.44	0.51
2:H:347:ILE:HD13	2:H:419:VAL:HG21	1.93	0.51
1:J:1062:SER:OG	1:J:1065:GLU:OE2	2.26	0.51
2:K:347:ILE:HD13	2:K:419:VAL:HG21	1.93	0.51
1:A:865:LYS:HB3	1:A:881:ILE:HD13	1.93	0.51
1:A:1110:GLU:CD	1:A:1110:GLU:H	2.14	0.51
1:D:201:GLY:HA3	6:D:1208:FAD:H52A	1.92	0.51
1:D:865:LYS:HB3	1:D:881:ILE:HD13	1.93	0.51
2:H:514:ARG:NH1	2:H:515:ASP:OD1	2.44	0.51
2:B:247:LEU:HD21	2:B:260:ILE:HD12	1.93	0.51
3:C:161:LYS:O	3:C:165:ILE:HG12	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1110:GLU:CD	1:D:1110:GLU:H	2.14	0.51
1:J:94:SER:O	1:J:594:LYS:HD3	2.11	0.51
1:A:201:GLY:HA3	6:A:1208:FAD:H52A	1.93	0.51
1:A:339:ARG:NH1	1:A:366:GLU:OE2	2.44	0.51
2:H:104:ARG:HA	2:H:354:GLU:OE1	2.10	0.51
1:J:403:LEU:HB3	1:J:412:ARG:CG	2.40	0.51
2:K:103:VAL:HG22	2:K:356:PRO:HG3	1.93	0.51
1:J:407:ASP:N	1:J:407:ASP:OD1	2.40	0.51
2:E:490:LEU:HD23	5:E:602:SF4:S2	2.50	0.50
1:A:946:ALA:O	1:A:978:CYS:HA	2.11	0.50
1:J:865:LYS:HB3	1:J:881:ILE:HD13	1.93	0.50
1:J:1067:THR:HA	1:J:1080:LEU:O	2.11	0.50
2:B:574:ASN:O	2:B:577:ARG:NH1	2.34	0.50
1:A:352:LEU:HD23	1:A:378:GLN:HB2	1.93	0.50
2:B:347:ILE:HD13	2:B:419:VAL:HG21	1.93	0.50
3:L:48:GLN:HE21	3:L:84:ARG:HG2	1.77	0.50
2:B:383:MET:O	2:B:388:GLY:HA3	2.11	0.50
1:D:946:ALA:O	1:D:978:CYS:HA	2.12	0.50
2:E:472:LEU:HD21	2:E:509:TYR:HB3	1.93	0.50
1:G:865:LYS:HB3	1:G:881:ILE:HD13	1.93	0.50
3:I:48:GLN:HE21	3:I:84:ARG:HG2	1.76	0.50
2:B:191:MET:SD	2:B:191:MET:N	2.81	0.50
1:D:290:SER:OG	1:D:308:GLU:OE1	2.20	0.50
1:A:290:SER:OG	1:A:308:GLU:OE1	2.21	0.50
1:A:635:VAL:HG13	3:C:78:THR:HG21	1.94	0.50
1:G:232:ARG:NH2	1:G:246:ASP:OD1	2.35	0.50
2:K:155:GLY:HA3	2:K:309:ASN:ND2	2.27	0.50
3:C:30:LEU:HD21	3:C:65:LYS:HB2	1.93	0.50
3:F:30:LEU:HD21	3:F:65:LYS:HB2	1.93	0.49
1:J:232:ARG:NH2	1:J:246:ASP:OD1	2.35	0.49
2:E:488:CYS:O	2:E:492:GLN:HG3	2.12	0.49
2:H:383:MET:SD	2:H:417:MET:HG3	2.52	0.49
1:D:130:VAL:HG21	1:D:177:ASP:HB2	1.94	0.49
1:D:339:ARG:NH1	1:D:366:GLU:OE2	2.46	0.49
1:A:774:TYR:OH	1:A:1038:GLU:OE2	2.24	0.49
1:D:58:PRO:O	1:D:80:ARG:NH2	2.37	0.49
1:D:94:SER:O	1:D:594:LYS:HD3	2.12	0.49
1:A:455:VAL:HG12	1:A:462:THR:HG22	1.95	0.49
2:B:197:GLU:HG2	2:B:229:LEU:HG	1.95	0.49
2:E:154:ARG:HA	2:E:154:ARG:HD3	1.62	0.49
2:E:175:ILE:HD12	2:E:303:ARG:HH11	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:251:ILE:O	2:E:254:THR:HG22	2.13	0.49
2:K:514:ARG:NH1	2:K:515:ASP:OD1	2.46	0.49
1:J:130:VAL:HG21	1:J:177:ASP:HB2	1.93	0.49
1:A:130:VAL:HG21	1:A:177:ASP:HB2	1.95	0.49
1:A:142:SER:OG	1:A:248:GLU:OE1	2.29	0.49
2:E:291:LYS:HB2	2:E:292:PRO:HD3	1.95	0.49
2:E:502:LEU:O	2:E:506:LYS:NZ	2.46	0.49
1:G:130:VAL:HG21	1:G:177:ASP:HB2	1.94	0.49
1:J:788:THR:OG1	1:J:791:GLU:HG3	2.13	0.49
2:K:300:LEU:H	2:K:305:THR:HG21	1.77	0.49
1:A:788:THR:OG1	1:A:791:GLU:HG3	2.13	0.49
2:B:18:LYS:HD3	2:B:18:LYS:N	2.27	0.49
1:J:202:PRO:O	1:J:206:THR:OG1	2.25	0.49
2:B:551:ILE:HG22	2:B:559:HIS:HB3	1.95	0.48
1:G:788:THR:OG1	1:G:791:GLU:HG3	2.13	0.48
1:J:815:SER:OG	1:J:818:ASP:OD1	2.25	0.48
3:L:54:LEU:HD22	3:L:59:LEU:HD21	1.94	0.48
2:B:483:LYS:NZ	2:B:492:GLN:O	2.34	0.48
1:D:788:THR:OG1	1:D:791:GLU:HG3	2.13	0.48
1:G:150:PRO:HD2	5:G:1205:SF4:S2	2.53	0.48
1:G:339:ARG:NH1	1:G:366:GLU:OE1	2.45	0.48
2:H:299:GLY:HA3	2:H:305:THR:HB	1.95	0.48
2:B:155:GLY:HA3	2:B:309:ASN:ND2	2.28	0.48
2:H:103:VAL:HG12	2:H:356:PRO:HG3	1.96	0.48
3:L:88:VAL:HG13	3:L:131:THR:HG21	1.95	0.48
1:A:815:SER:OG	1:A:818:ASP:OD1	2.25	0.48
2:B:291:LYS:HB2	2:B:292:PRO:HD3	1.94	0.48
1:D:455:VAL:HG12	1:D:462:THR:HG22	1.96	0.48
1:D:815:SER:OG	1:D:818:ASP:OD1	2.25	0.48
1:G:784:SER:OG	1:G:1161:ASP:OD1	2.21	0.48
2:K:483:LYS:NZ	2:K:492:GLN:O	2.37	0.48
2:K:551:ILE:HG12	2:K:561:ILE:HD13	1.95	0.48
3:L:143:LEU:HB3	3:L:155:GLY:HA3	1.95	0.48
2:E:155:GLY:HA3	2:E:309:ASN:ND2	2.29	0.48
2:K:251:ILE:O	2:K:254:THR:HG22	2.13	0.48
2:E:501:THR:HG22	2:E:509:TYR:HE1	1.78	0.48
1:G:202:PRO:O	1:G:206:THR:OG1	2.25	0.48
2:H:175:ILE:HD12	2:H:303:ARG:HH11	1.78	0.48
2:H:182:ALA:HB1	2:H:196:LEU:HD11	1.96	0.48
1:A:187:ILE:HD13	1:A:213:LYS:HA	1.95	0.48
1:A:775:GLY:O	1:A:778:SER:OG	2.27	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:817:LEU:HD12	1:D:982:LYS:HD3	1.96	0.48
2:E:483:LYS:NZ	2:E:492:GLN:O	2.35	0.48
1:J:150:PRO:HD2	5:J:1205:SF4:S2	2.54	0.48
2:K:189:ALA:HB1	2:K:191:MET:SD	2.54	0.48
2:K:291:LYS:HB2	2:K:292:PRO:HD3	1.95	0.48
3:L:52:ARG:HH12	3:L:88:VAL:HG12	1.79	0.48
2:B:273:GLU:OE1	2:B:275:THR:OG1	2.27	0.47
2:E:299:GLY:HA3	2:E:305:THR:HB	1.96	0.47
2:E:383:MET:SD	2:E:417:MET:HG3	2.54	0.47
2:H:47:PHE:HB3	2:H:50:LEU:HD21	1.96	0.47
2:K:377:ALA:HB3	2:K:422:GLU:HB3	1.96	0.47
1:A:150:PRO:HD2	5:A:1205:SF4:S2	2.54	0.47
2:H:271:CYS:SG	2:H:280:SER:OG	2.63	0.47
2:H:501:THR:HG22	2:H:509:TYR:HE1	1.79	0.47
7:K:601:FMN:H1'2	7:K:601:FMN:H4'	1.75	0.47
1:A:209:PHE:CE2	1:A:255:MET:HE1	2.49	0.47
1:D:405:ASP:HA	1:D:412:ARG:HH11	1.79	0.47
2:H:251:ILE:O	2:H:254:THR:HG22	2.14	0.47
1:J:455:VAL:HG12	1:J:462:THR:HG22	1.96	0.47
2:K:271:CYS:SG	2:K:280:SER:OG	2.65	0.47
7:E:601:FMN:HO2'	7:E:601:FMN:HO4'	1.60	0.47
1:G:818:ASP:OD1	1:G:818:ASP:N	2.46	0.47
1:A:405:ASP:O	1:A:413:ARG:N	2.25	0.47
3:C:140:CYS:HB2	3:C:143:LEU:HD12	1.95	0.47
1:G:325:VAL:HG13	1:G:428:THR:HG23	1.96	0.47
1:D:775:GLY:O	1:D:778:SER:OG	2.27	0.47
3:I:52:ARG:HH12	3:I:88:VAL:HG12	1.80	0.47
1:J:325:VAL:HG13	1:J:428:THR:HG23	1.97	0.47
1:J:817:LEU:HD12	1:J:982:LYS:HD3	1.97	0.47
1:J:818:ASP:OD1	1:J:818:ASP:N	2.46	0.47
1:A:165:ALA:HB1	1:A:168:GLU:HB2	1.97	0.47
1:A:1032:GLU:O	1:A:1035:ASP:HB2	2.14	0.47
2:B:234:LEU:HD13	2:B:262:LEU:HD21	1.96	0.47
2:B:251:ILE:O	2:B:254:THR:HG22	2.13	0.47
2:E:441:SER:OG	2:E:448:CYS:SG	2.61	0.47
3:F:88:VAL:HG13	3:F:131:THR:HG21	1.97	0.47
1:G:455:VAL:HG12	1:G:462:THR:HG22	1.96	0.47
3:L:97:GLN:HG3	3:L:134:GLU:HG2	1.96	0.47
1:A:355:ARG:HG2	1:A:414:PRO:HG3	1.97	0.47
1:A:817:LEU:HD12	1:A:982:LYS:HD3	1.96	0.47
2:B:75:GLU:HA	2:B:79:ILE:HB	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:116:GLU:HG2	3:C:166:ILE:HG21	1.97	0.47
2:E:1:MET:HB3	2:E:34:ILE:HD12	1.97	0.47
1:G:898:ALA:O	1:G:902:MET:HG2	2.15	0.47
2:K:1:MET:HB3	2:K:34:ILE:HD12	1.96	0.47
3:L:68:VAL:HB	3:L:73:ILE:HD11	1.97	0.47
1:A:589:ARG:HB2	2:B:474:LEU:HD11	1.97	0.47
2:B:299:GLY:HA3	2:B:305:THR:HB	1.97	0.47
1:G:5:ARG:NH1	1:J:834:TYR:O	2.47	0.47
1:J:355:ARG:HG2	1:J:414:PRO:HG3	1.96	0.47
1:A:403:LEU:HB3	1:A:412:ARG:HG2	1.97	0.47
1:G:168:GLU:HB3	1:G:551:MET:HE3	1.97	0.47
2:K:434:LEU:HD13	2:K:455:MET:HB3	1.97	0.47
2:K:488:CYS:O	2:K:492:GLN:HG3	2.15	0.47
3:C:143:LEU:HB3	3:C:155:GLY:HA3	1.97	0.46
2:H:155:GLY:HA3	2:H:309:ASN:ND2	2.30	0.46
2:H:363:GLU:O	2:H:367:ASN:HB3	2.15	0.46
1:J:168:GLU:HB3	1:J:551:MET:HE3	1.97	0.46
1:A:209:PHE:CD2	1:A:255:MET:HE1	2.50	0.46
2:H:502:LEU:O	2:H:506:LYS:NZ	2.48	0.46
1:A:133:ILE:HD13	1:A:170:LYS:HD3	1.97	0.46
2:K:104:ARG:HA	2:K:354:GLU:OE1	2.15	0.46
2:K:533:PRO:HA	2:K:558:PRO:HB3	1.96	0.46
2:B:454:ARG:O	2:B:458:ILE:HD12	2.16	0.46
1:D:209:PHE:CE2	1:D:255:MET:HE1	2.50	0.46
1:D:952:GLU:HG2	1:D:984:THR:HA	1.98	0.46
3:F:143:LEU:HB3	3:F:155:GLY:HA3	1.97	0.46
1:G:254:LYS:HE3	1:G:254:LYS:HB2	1.71	0.46
2:H:529:TYR:CE1	2:H:583:VAL:HB	2.51	0.46
3:L:30:LEU:HD12	3:L:30:LEU:HA	1.80	0.46
2:B:104:ARG:HH11	2:B:112:ARG:HH12	1.63	0.46
1:G:952:GLU:HG2	1:G:984:THR:HA	1.96	0.46
1:A:952:GLU:HG2	1:A:984:THR:HA	1.98	0.46
1:D:849:HIS:NE2	1:D:951:ASP:OD1	2.33	0.46
1:D:870:ASN:O	1:D:885:LYS:HA	2.16	0.46
3:I:62:ILE:O	3:I:66:THR:OG1	2.24	0.46
2:K:50:LEU:HD22	2:K:61:THR:HG22	1.97	0.46
1:A:254:LYS:HE3	1:A:254:LYS:HB2	1.70	0.46
1:A:325:VAL:HG13	1:A:428:THR:HG23	1.97	0.46
1:G:133:ILE:HD13	1:G:170:LYS:HD3	1.98	0.46
2:K:546:CYS:SG	2:K:551:ILE:HG13	2.56	0.46
2:B:278:ILE:HG23	2:B:300:LEU:HD23	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:209:PHE:CD2	1:D:255:MET:HE1	2.51	0.46
2:E:61:THR:HB	2:E:90:SER:HB3	1.97	0.46
3:F:68:VAL:HB	3:F:73:ILE:HD11	1.98	0.46
1:G:775:GLY:O	1:G:778:SER:OG	2.27	0.46
2:K:501:THR:HG22	2:K:509:TYR:HE1	1.81	0.46
1:A:810:PHE:HA	1:A:1001:LYS:HB2	1.98	0.46
2:B:362:ARG:HH21	2:B:396:ILE:HG21	1.81	0.46
3:C:101:CYS:HA	3:C:144:ALA:HB1	1.97	0.46
1:D:776:LYS:HD3	1:D:803:ASP:CG	2.37	0.46
1:J:647:PHE:CZ	3:L:70:LYS:HB3	2.51	0.46
1:J:668:THR:O	1:J:668:THR:OG1	2.32	0.46
2:K:47:PHE:HB3	2:K:50:LEU:HD21	1.98	0.46
3:I:68:VAL:HB	3:I:73:ILE:HD11	1.98	0.45
1:J:784:SER:OG	1:J:1161:ASP:OD1	2.21	0.45
1:A:336:ASP:OD2	6:A:1208:FAD:H6	2.16	0.45
1:A:368:ASN:O	1:A:372:GLU:HG3	2.16	0.45
1:A:849:HIS:NE2	1:A:951:ASP:OD1	2.33	0.45
2:E:196:LEU:HD22	2:E:234:LEU:HD11	1.97	0.45
2:E:434:LEU:HD13	2:E:455:MET:HB3	1.98	0.45
3:F:48:GLN:OE1	3:F:83:PHE:HA	2.16	0.45
1:G:870:ASN:O	1:G:885:LYS:HA	2.15	0.45
1:J:133:ILE:HD13	1:J:170:LYS:HD3	1.98	0.45
1:A:403:LEU:HB3	1:A:412:ARG:CG	2.47	0.45
1:A:870:ASN:O	1:A:885:LYS:HA	2.16	0.45
1:D:810:PHE:HA	1:D:1001:LYS:HB2	1.99	0.45
1:J:411:ARG:HD3	1:J:411:ARG:HA	1.73	0.45
2:K:154:ARG:HA	2:K:154:ARG:HD3	1.72	0.45
2:K:363:GLU:O	2:K:367:ASN:HB3	2.17	0.45
1:A:169:LEU:O	1:A:173:VAL:HG22	2.17	0.45
1:D:412:ARG:HA	1:D:412:ARG:HD3	1.78	0.45
3:F:52:ARG:HH12	3:F:88:VAL:HG12	1.82	0.45
2:H:544:ARG:HA	2:H:544:ARG:HD3	1.80	0.45
2:H:576:CYS:HB2	5:H:604:SF4:S4	2.56	0.45
1:J:58:PRO:O	1:J:80:ARG:NH2	2.37	0.45
1:J:342:ILE:HG12	1:J:349:VAL:HG21	1.99	0.45
1:J:501:LYS:HD2	1:J:501:LYS:HA	1.73	0.45
1:J:788:THR:HG22	1:J:1080:LEU:HD12	1.98	0.45
1:J:870:ASN:O	1:J:885:LYS:HA	2.16	0.45
2:K:544:ARG:HA	2:K:544:ARG:HD3	1.80	0.45
2:B:320:ILE:HD13	2:B:320:ILE:HA	1.84	0.45
1:D:342:ILE:HG12	1:D:349:VAL:HG21	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:784:SER:OG	1:D:1161:ASP:OD1	2.21	0.45
1:D:788:THR:HG22	1:D:1080:LEU:HD12	1.99	0.45
1:D:908:ASP:O	1:D:912:LYS:HG3	2.16	0.45
2:E:271:CYS:SG	2:E:280:SER:OG	2.62	0.45
1:G:681:VAL:HG22	1:G:683:VAL:HG13	1.99	0.45
1:J:352:LEU:HD23	1:J:378:GLN:HB2	1.98	0.45
1:J:810:PHE:HA	1:J:1001:LYS:HB2	1.99	0.45
1:J:898:ALA:O	1:J:902:MET:HG2	2.17	0.45
2:K:175:ILE:HD12	2:K:303:ARG:HH11	1.80	0.45
1:A:788:THR:HG22	1:A:1080:LEU:HD12	1.99	0.45
1:G:58:PRO:O	1:G:80:ARG:NH2	2.36	0.45
1:G:184:ILE:HD11	1:G:254:LYS:HB3	1.97	0.45
1:G:342:ILE:HG12	1:G:349:VAL:HG21	1.99	0.45
1:G:788:THR:HG22	1:G:1080:LEU:HD12	1.99	0.45
1:G:1032:GLU:O	1:G:1035:ASP:HB2	2.16	0.45
1:J:681:VAL:HG22	1:J:683:VAL:HG13	1.99	0.45
2:K:44:LEU:HD21	2:K:99:LEU:HD13	1.99	0.45
2:K:334:LYS:HD2	2:K:334:LYS:HA	1.75	0.45
3:C:88:VAL:HG13	3:C:131:THR:HG21	1.99	0.45
1:G:810:PHE:HA	1:G:1001:LYS:HB2	1.99	0.45
1:A:784:SER:OG	1:A:1161:ASP:OD1	2.21	0.45
1:D:133:ILE:HD13	1:D:170:LYS:HD3	1.98	0.45
1:D:336:ASP:OD2	6:D:1208:FAD:H6	2.17	0.45
1:D:352:LEU:HD23	1:D:378:GLN:HB2	1.98	0.45
2:E:363:GLU:O	2:E:367:ASN:HB3	2.16	0.45
1:G:352:LEU:HD23	1:G:378:GLN:HB2	1.98	0.45
1:G:406:MET:SD	1:G:406:MET:N	2.90	0.45
1:G:668:THR:O	1:G:668:THR:OG1	2.32	0.45
2:H:44:LEU:HD21	2:H:99:LEU:HD13	1.99	0.45
1:J:336:ASP:OD2	6:J:1208:FAD:H6	2.17	0.45
2:K:52:ASP:OD1	2:K:61:THR:HG23	2.17	0.45
1:A:537:ALA:HA	1:A:540:ARG:HG2	1.99	0.45
2:B:427:VAL:HG12	2:B:463:CYS:SG	2.57	0.45
1:D:537:ALA:HA	1:D:540:ARG:HG2	1.99	0.45
1:G:694:PHE:O	1:G:1164:LYS:NZ	2.31	0.45
1:J:694:PHE:O	1:J:1164:LYS:NZ	2.31	0.45
1:D:222:GLU:HG3	1:D:224:MET:H	1.82	0.45
2:E:103:VAL:HG12	2:E:356:PRO:HG3	1.99	0.45
2:E:155:GLY:HA3	2:E:309:ASN:HD22	1.82	0.45
2:E:546:CYS:SG	2:E:551:ILE:HG13	2.57	0.45
1:G:776:LYS:HD3	1:G:803:ASP:CG	2.36	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:982:LYS:HB2	1:G:982:LYS:HE3	1.73	0.45
1:J:908:ASP:O	1:J:912:LYS:HG3	2.16	0.45
1:A:908:ASP:O	1:A:912:LYS:HG3	2.17	0.44
3:F:97:GLN:HG3	3:F:134:GLU:HG2	1.99	0.44
1:J:1064:VAL:HB	1:J:1083:VAL:HB	1.99	0.44
3:L:174:LYS:HD2	3:L:174:LYS:HA	1.69	0.44
2:B:271:CYS:SG	2:B:280:SER:OG	2.58	0.44
2:E:576:CYS:HB2	5:E:604:SF4:S4	2.57	0.44
1:G:157:ARG:HG2	1:G:162:GLN:O	2.17	0.44
1:J:667:PRO:HG2	1:J:668:THR:HG23	1.99	0.44
1:J:952:GLU:HG2	1:J:984:THR:HA	1.98	0.44
1:A:443:GLU:OE1	1:A:443:GLU:N	2.48	0.44
1:A:1064:VAL:HB	1:A:1083:VAL:HB	1.99	0.44
1:A:1119:LEU:O	1:A:1123:GLU:HG3	2.18	0.44
3:C:138:LEU:HD13	3:C:148:MET:HG3	1.99	0.44
2:E:44:LEU:HD21	2:E:99:LEU:HD13	1.99	0.44
2:E:221:ILE:HB	2:E:262:LEU:HD23	1.99	0.44
2:E:417:MET:HB2	2:E:417:MET:HE2	1.81	0.44
1:G:355:ARG:HG2	1:G:414:PRO:HG3	1.98	0.44
3:C:129:MET:CE	3:C:173:GLU:HG2	2.47	0.44
1:G:908:ASP:O	1:G:912:LYS:HG3	2.16	0.44
2:H:378:PHE:CE1	2:H:419:VAL:HG13	2.52	0.44
1:J:524:ARG:O	1:J:526:ARG:NH1	2.46	0.44
1:A:342:ILE:HG12	1:A:349:VAL:HG21	2.00	0.44
1:A:694:PHE:O	1:A:1164:LYS:NZ	2.31	0.44
1:D:169:LEU:O	1:D:173:VAL:HG22	2.18	0.44
1:G:169:LEU:O	1:G:173:VAL:HG22	2.18	0.44
1:G:646:GLU:HB3	3:I:70:LYS:HB2	2.00	0.44
1:J:169:LEU:O	1:J:173:VAL:HG22	2.18	0.44
2:B:531:ILE:HG12	2:B:581:VAL:HG12	2.00	0.44
1:D:694:PHE:O	1:D:1164:LYS:NZ	2.31	0.44
2:E:472:LEU:HD13	2:E:506:LYS:HE3	1.99	0.44
1:G:222:GLU:HG3	1:G:224:MET:H	1.82	0.44
1:G:524:ARG:O	1:G:526:ARG:NH1	2.46	0.44
1:J:775:GLY:O	1:J:778:SER:OG	2.28	0.44
2:K:576:CYS:HB2	5:K:604:SF4:S4	2.57	0.44
1:A:58:PRO:O	1:A:80:ARG:NH2	2.40	0.44
1:A:157:ARG:HG2	1:A:162:GLN:O	2.18	0.44
2:B:363:GLU:O	2:B:367:ASN:HB3	2.17	0.44
1:D:165:ALA:HB1	1:D:168:GLU:HB2	2.00	0.44
1:D:168:GLU:HB3	1:D:551:MET:HE3	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:33:ASP:OD1	2:E:33:ASP:N	2.51	0.44
1:G:336:ASP:OD2	6:G:1208:FAD:H6	2.17	0.44
1:A:898:ALA:O	1:A:902:MET:HG2	2.18	0.44
1:D:681:VAL:HG22	1:D:683:VAL:HG13	1.99	0.44
2:E:320:ILE:HD13	2:E:320:ILE:HA	1.86	0.44
1:G:537:ALA:HA	1:G:540:ARG:HG2	1.99	0.44
2:H:454:ARG:NH2	2:H:461:ARG:HH12	2.16	0.44
3:I:174:LYS:HD2	3:I:174:LYS:HA	1.75	0.44
1:J:537:ALA:HA	1:J:540:ARG:HG2	1.99	0.44
2:K:531:ILE:HG12	2:K:581:VAL:HG12	2.00	0.44
1:D:1064:VAL:HB	1:D:1083:VAL:HB	2.00	0.44
2:E:378:PHE:CE1	2:E:419:VAL:HG13	2.53	0.44
2:E:529:TYR:CE1	2:E:583:VAL:HB	2.52	0.44
1:G:284:ALA:O	6:G:1208:FAD:H51A	2.18	0.44
1:G:667:PRO:HG2	1:G:668:THR:HG23	1.99	0.44
1:J:161:ASP:OD1	1:J:162:GLN:N	2.51	0.44
1:J:284:ALA:O	6:J:1208:FAD:H51A	2.18	0.44
1:J:290:SER:OG	1:J:308:GLU:OE1	2.21	0.44
1:J:357:ARG:HB2	1:J:379:PHE:CZ	2.53	0.44
1:D:885:LYS:HA	1:D:885:LYS:HD3	1.79	0.43
2:E:557:LYS:HD2	2:E:557:LYS:HA	1.69	0.43
2:K:383:MET:SD	2:K:417:MET:HG3	2.57	0.43
2:K:417:MET:HB2	2:K:417:MET:HE2	1.85	0.43
1:A:284:ALA:O	6:A:1208:FAD:H51A	2.18	0.43
1:A:612:LYS:O	1:A:668:THR:OG1	2.36	0.43
2:B:193:ARG:HG2	2:B:197:GLU:OE2	2.18	0.43
1:D:187:ILE:HD11	1:D:255:MET:HG3	2.00	0.43
1:G:94:SER:O	1:G:594:LYS:HD3	2.18	0.43
1:G:817:LEU:HD12	1:G:982:LYS:HD3	1.99	0.43
3:I:143:LEU:HB3	3:I:155:GLY:HA3	2.00	0.43
2:K:196:LEU:HD22	2:K:234:LEU:HD11	2.00	0.43
1:A:168:GLU:HB3	1:A:551:MET:HE3	1.99	0.43
2:B:377:ALA:HB3	2:B:422:GLU:HB3	1.98	0.43
2:B:468:ARG:HE	2:B:468:ARG:HB3	1.65	0.43
1:D:646:GLU:HB3	3:F:70:LYS:HB2	2.01	0.43
1:J:412:ARG:HA	1:J:412:ARG:HD3	1.80	0.43
1:A:357:ARG:HB2	1:A:379:PHE:CZ	2.53	0.43
2:B:6:GLY:HA2	2:B:39:THR:HG22	2.00	0.43
1:D:157:ARG:HG2	1:D:162:GLN:O	2.18	0.43
1:D:284:ALA:O	6:D:1208:FAD:H51A	2.18	0.43
1:D:563:CYS:HB3	1:D:679:LYS:HE2	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:434:LEU:HD23	2:H:434:LEU:HA	1.80	0.43
2:H:483:LYS:NZ	2:H:492:GLN:O	2.41	0.43
1:J:646:GLU:HB3	3:L:70:LYS:HB2	2.01	0.43
1:D:325:VAL:HG13	1:D:428:THR:HG23	2.01	0.43
1:D:355:ARG:HD2	1:D:359:GLU:OE1	2.18	0.43
1:D:1032:GLU:O	1:D:1035:ASP:HB2	2.18	0.43
1:G:357:ARG:HB2	1:G:379:PHE:CZ	2.54	0.43
1:J:324:ARG:HB3	1:J:426:ALA:HA	1.99	0.43
1:A:563:CYS:HB3	1:A:679:LYS:HE2	2.01	0.43
2:B:154:ARG:HA	2:B:154:ARG:HD3	1.74	0.43
1:D:612:LYS:O	1:D:668:THR:OG1	2.36	0.43
1:D:818:ASP:OD1	1:D:818:ASP:N	2.46	0.43
1:G:1064:VAL:HB	1:G:1083:VAL:HB	2.00	0.43
2:H:196:LEU:HD22	2:H:234:LEU:HD11	2.00	0.43
2:H:275:THR:HB	2:H:289:ARG:H	1.83	0.43
2:H:448:CYS:O	2:H:452:THR:OG1	2.25	0.43
3:L:52:ARG:NH1	3:L:88:VAL:O	2.51	0.43
1:A:91:LEU:HB3	2:B:450:VAL:HB	2.00	0.43
1:A:347:LYS:N	1:A:347:LYS:HD2	2.33	0.43
1:A:1028:LYS:HA	1:A:1028:LYS:HD3	1.83	0.43
2:B:107:LEU:HD12	2:B:354:GLU:HB2	2.00	0.43
1:D:148:PRO:HG3	1:D:479:ILE:HG21	2.00	0.43
1:G:148:PRO:HG3	1:G:479:ILE:HG21	2.01	0.43
2:H:1:MET:HB3	2:H:34:ILE:HD12	2.01	0.43
2:H:417:MET:HB2	2:H:417:MET:HE2	1.86	0.43
2:H:546:CYS:SG	2:H:551:ILE:HG13	2.59	0.43
2:B:94:GLU:OE2	2:B:94:GLU:N	2.51	0.43
2:K:472:LEU:HD21	2:K:509:TYR:HB3	2.01	0.43
1:A:667:PRO:HG2	1:A:668:THR:HG23	1.99	0.43
3:C:54:LEU:HD22	3:C:59:LEU:HD21	2.00	0.43
3:C:152:GLU:H	3:C:152:GLU:HG3	1.68	0.43
1:D:357:ARG:HB2	1:D:379:PHE:CZ	2.54	0.43
1:G:165:ALA:HB1	1:G:168:GLU:HB2	1.99	0.43
2:H:1:MET:HA	2:H:54:ILE:O	2.19	0.43
2:H:533:PRO:HA	2:H:558:PRO:HB3	2.00	0.43
3:C:31:ASP:HA	3:C:34:LYS:HD3	2.01	0.43
1:D:667:PRO:HG2	1:D:668:THR:HG23	1.99	0.43
1:G:387:ILE:HD11	1:G:397:LYS:HB2	2.01	0.43
1:G:986:LEU:HD11	1:G:1161:ASP:HB2	2.01	0.43
2:H:102:GLN:NE2	2:H:353:VAL:HG12	2.34	0.43
1:J:157:ARG:HG2	1:J:162:GLN:O	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:165:ALA:HB1	1:J:168:GLU:HB2	2.00	0.43
2:K:447:TYR:HE1	2:K:481:SER:HB2	1.84	0.43
1:D:324:ARG:HB3	1:D:426:ALA:HA	2.00	0.42
2:H:75:GLU:HA	2:H:79:ILE:HB	2.00	0.42
2:H:154:ARG:HA	2:H:154:ARG:HD3	1.70	0.42
1:J:387:ILE:HD11	1:J:397:LYS:HB2	2.01	0.42
1:J:488:LYS:HB3	1:J:488:LYS:HE3	1.75	0.42
1:J:1119:LEU:O	1:J:1123:GLU:HG3	2.18	0.42
1:A:818:ASP:OD1	1:A:818:ASP:N	2.47	0.42
1:A:1020:SER:N	1:A:1043:ALA:O	2.44	0.42
1:J:1002:GLU:CD	1:J:1002:GLU:H	2.22	0.42
2:K:27:LEU:HD23	2:K:27:LEU:HA	1.91	0.42
2:K:359:MET:O	2:K:400:VAL:N	2.49	0.42
1:A:922:ASP:O	1:A:925:LYS:HG2	2.20	0.42
1:A:1098:LYS:O	1:A:1101:GLU:HG2	2.19	0.42
2:B:1:MET:HA	2:B:54:ILE:O	2.19	0.42
2:B:335:SER:OG	2:B:401:ASP:OD1	2.20	0.42
3:F:124:THR:HG22	3:F:131:THR:HG23	2.02	0.42
1:G:892:PHE:O	1:G:895:THR:HB	2.19	0.42
1:G:1002:GLU:CD	1:G:1002:GLU:H	2.22	0.42
2:H:269:PHE:HB3	2:H:440:GLU:HB3	2.02	0.42
1:J:148:PRO:HG3	1:J:479:ILE:HG21	2.01	0.42
1:J:497:TYR:HB2	1:J:502:LEU:HD12	2.01	0.42
1:J:1020:SER:N	1:J:1043:ALA:O	2.44	0.42
1:A:1002:GLU:H	1:A:1002:GLU:CD	2.22	0.42
1:D:1002:GLU:H	1:D:1002:GLU:CD	2.22	0.42
1:J:92:LEU:HD21	2:K:446:THR:HG21	2.02	0.42
1:A:188:LYS:HD2	1:A:214:GLU:HA	2.02	0.42
2:B:561:ILE:HD11	5:B:605:SF4:S3	2.60	0.42
3:C:69:LYS:O	3:C:73:ILE:HG12	2.20	0.42
1:D:107:ALA:HB3	1:D:151:CYS:HA	2.01	0.42
1:G:1020:SER:N	1:G:1043:ALA:O	2.44	0.42
2:H:448:CYS:HB3	5:H:602:SF4:S4	2.59	0.42
2:K:7:LEU:HB2	2:K:233:ARG:HH22	1.83	0.42
1:A:324:ARG:HB3	1:A:426:ALA:HA	2.01	0.42
1:D:92:LEU:HD21	2:E:446:THR:HG21	2.02	0.42
1:D:1020:SER:N	1:D:1043:ALA:O	2.44	0.42
1:G:488:LYS:HB3	1:G:488:LYS:HE3	1.75	0.42
2:K:72:LYS:O	2:K:76:SER:HB3	2.19	0.42
1:D:405:ASP:O	1:D:413:ARG:N	2.27	0.42
1:D:731:ILE:HD11	1:D:1064:VAL:HG11	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:102:GLN:NE2	2:E:353:VAL:HG12	2.35	0.42
2:E:247:LEU:HA	2:E:251:ILE:HD11	2.01	0.42
2:E:388:GLY:HA2	2:E:411:ILE:HG12	2.01	0.42
1:G:411:ARG:HA	1:G:411:ARG:HD3	1.75	0.42
2:H:571:THR:HB	5:H:605:SF4:S4	2.59	0.42
2:H:578:PHE:N	2:H:578:PHE:CD1	2.88	0.42
1:J:647:PHE:CE2	3:L:70:LYS:HB3	2.55	0.42
1:J:986:LEU:HD11	1:J:1161:ASP:HB2	2.02	0.42
2:K:362:ARG:HB2	2:K:396:ILE:HG23	2.02	0.42
1:A:5:ARG:NH1	1:D:834:TYR:O	2.47	0.42
1:A:785:GLN:HB2	1:A:986:LEU:HD12	2.02	0.42
1:A:986:LEU:HD11	1:A:1161:ASP:HB2	2.00	0.42
2:B:249:ASN:HA	2:B:257:SER:HB2	2.02	0.42
2:B:441:SER:OG	2:B:448:CYS:SG	2.59	0.42
3:C:174:LYS:HA	3:C:174:LYS:HD2	1.79	0.42
1:D:739:ARG:HE	1:D:739:ARG:HB3	1.61	0.42
1:D:986:LEU:HD11	1:D:1161:ASP:HB2	2.00	0.42
3:F:22:ASP:OD1	3:F:24:SER:OG	2.30	0.42
2:H:573:MET:SD	2:H:581:VAL:HG23	2.60	0.42
1:A:202:PRO:HG3	1:A:231:LEU:HG	2.02	0.42
2:B:103:VAL:HB	2:B:356:PRO:HG3	2.02	0.42
2:E:535:LYS:HB3	2:E:580:ALA:HA	2.01	0.42
3:F:174:LYS:HA	3:F:174:LYS:HD2	1.76	0.42
2:H:221:ILE:HB	2:H:262:LEU:HD23	2.02	0.42
1:J:405:ASP:HA	1:J:412:ARG:HH11	1.85	0.42
1:J:776:LYS:HD3	1:J:803:ASP:CG	2.41	0.42
1:J:892:PHE:O	1:J:895:THR:HB	2.20	0.42
1:A:731:ILE:HD11	1:A:1064:VAL:HG11	2.02	0.42
1:G:403:LEU:HB3	1:G:412:ARG:CG	2.45	0.42
1:G:731:ILE:HD11	1:G:1064:VAL:HG11	2.02	0.42
2:H:475:LEU:HD12	2:H:475:LEU:HA	1.92	0.42
1:J:563:CYS:HB3	1:J:679:LYS:HE2	2.01	0.42
1:A:739:ARG:HE	1:A:739:ARG:HB3	1.61	0.41
1:A:834:TYR:O	1:D:5:ARG:NH1	2.48	0.41
1:A:866:LEU:HD21	1:A:876:ALA:HB1	2.02	0.41
2:B:74:ILE:HD13	2:B:78:VAL:HG21	2.02	0.41
1:D:368:ASN:O	1:D:372:GLU:HG3	2.20	0.41
7:E:601:FMN:N1	7:E:601:FMN:H3'	2.34	0.41
1:G:86:LYS:HE3	1:G:86:LYS:HB3	1.81	0.41
2:K:578:PHE:N	2:K:578:PHE:CD1	2.88	0.41
1:A:387:ILE:HD11	1:A:397:LYS:HB2	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:388:GLY:HA2	2:B:411:ILE:HG12	2.02	0.41
1:D:202:PRO:HG3	1:D:231:LEU:HG	2.02	0.41
1:D:387:ILE:HD11	1:D:397:LYS:HB2	2.02	0.41
1:D:785:GLN:HB2	1:D:986:LEU:HD12	2.03	0.41
1:D:889:THR:HG23	1:D:962:GLN:HG3	2.01	0.41
1:D:1028:LYS:HA	1:D:1028:LYS:HD3	1.82	0.41
3:F:30:LEU:HD11	3:F:66:THR:HG23	2.02	0.41
2:H:359:MET:O	2:H:400:VAL:N	2.50	0.41
1:J:982:LYS:HE3	1:J:982:LYS:HB2	1.82	0.41
2:B:84:LEU:HD23	2:B:87:PHE:HD2	1.85	0.41
1:D:342:ILE:HG13	1:D:375:VAL:HG22	2.02	0.41
1:J:612:LYS:O	1:J:668:THR:OG1	2.36	0.41
2:B:378:PHE:CE1	2:B:419:VAL:HG13	2.55	0.41
1:G:612:LYS:O	1:G:668:THR:OG1	2.36	0.41
1:J:936:PHE:CZ	1:J:940:ILE:HD11	2.56	0.41
2:K:529:TYR:CE1	2:K:583:VAL:HB	2.55	0.41
1:A:148:PRO:HG3	1:A:479:ILE:HG21	2.02	0.41
1:A:161:ASP:OD1	1:A:162:GLN:N	2.50	0.41
1:A:668:THR:OG1	1:A:668:THR:O	2.31	0.41
2:B:103:VAL:HG12	2:B:338:THR:HG21	2.01	0.41
2:B:189:ALA:HB1	2:B:191:MET:SD	2.60	0.41
2:B:234:LEU:HB3	2:B:262:LEU:HD11	2.02	0.41
1:D:42:LYS:HB2	1:D:42:LYS:HE3	1.77	0.41
1:D:86:LYS:HB3	1:D:86:LYS:HE3	1.82	0.41
1:D:411:ARG:HA	1:D:411:ARG:HD3	1.75	0.41
1:G:589:ARG:O	2:H:454:ARG:NH2	2.54	0.41
1:G:885:LYS:HA	1:G:885:LYS:HD3	1.80	0.41
1:G:936:PHE:CZ	1:G:940:ILE:HD11	2.56	0.41
1:J:42:LYS:HE3	1:J:42:LYS:HB2	1.77	0.41
1:J:202:PRO:HG3	1:J:231:LEU:HG	2.02	0.41
1:J:731:ILE:HD11	1:J:1064:VAL:HG11	2.03	0.41
1:A:411:ARG:HA	1:A:411:ARG:HD3	1.77	0.41
1:D:866:LEU:HD21	1:D:876:ALA:HB1	2.03	0.41
1:D:936:PHE:CZ	1:D:940:ILE:HD11	2.55	0.41
2:E:544:ARG:HA	2:E:544:ARG:HD3	1.80	0.41
1:G:647:PHE:CE2	3:I:70:LYS:HB3	2.55	0.41
1:G:651:LEU:HD12	1:G:651:LEU:HA	1.93	0.41
3:I:109:ILE:H	3:I:109:ILE:HG12	1.68	0.41
1:J:342:ILE:HG13	1:J:375:VAL:HG22	2.02	0.41
1:D:668:THR:OG1	1:D:668:THR:O	2.32	0.41
2:E:334:LYS:HA	2:E:334:LYS:HD2	1.75	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:42:LYS:HE3	1:G:42:LYS:HB2	1.77	0.41
1:G:396:LEU:HD13	1:G:429:ILE:HD13	2.02	0.41
3:I:146:VAL:HA	3:I:154:TYR:O	2.21	0.41
2:K:102:GLN:NE2	2:K:353:VAL:HG12	2.36	0.41
2:K:204:LEU:HD22	2:K:260:ILE:HD13	2.03	0.41
1:A:326:LEU:HD23	1:A:350:THR:HB	2.03	0.41
1:A:889:THR:HG23	1:A:962:GLN:HG3	2.02	0.41
2:B:555:ARG:HH12	2:B:556:LEU:HG	1.84	0.41
1:D:892:PHE:O	1:D:895:THR:HB	2.20	0.41
2:E:578:PHE:CD1	2:E:578:PHE:N	2.89	0.41
1:G:202:PRO:HG3	1:G:231:LEU:HG	2.02	0.41
1:G:342:ILE:HG13	1:G:375:VAL:HG22	2.02	0.41
2:H:155:GLY:HA2	2:H:414:SER:HA	2.02	0.41
1:J:651:LEU:HD12	1:J:651:LEU:HA	1.93	0.41
1:J:885:LYS:HA	1:J:885:LYS:HD3	1.79	0.41
2:K:61:THR:HB	2:K:90:SER:HB3	2.02	0.41
1:A:275:ARG:HE	1:A:275:ARG:HB3	1.66	0.41
1:A:342:ILE:HG13	1:A:375:VAL:HG22	2.02	0.41
1:A:401:MET:CE	1:A:414:PRO:HB2	2.51	0.41
1:A:651:LEU:HD12	1:A:651:LEU:HA	1.93	0.41
1:A:936:PHE:CZ	1:A:940:ILE:HD11	2.56	0.41
2:B:426:MET:HG3	2:B:505:PHE:CD2	2.55	0.41
1:D:651:LEU:HD12	1:D:651:LEU:HA	1.93	0.41
2:E:448:CYS:O	2:E:452:THR:OG1	2.28	0.41
2:E:531:ILE:HG13	2:E:581:VAL:HG12	2.03	0.41
3:F:145:PRO:HG2	3:F:157:LEU:HB2	2.03	0.41
3:F:146:VAL:HA	3:F:154:TYR:O	2.21	0.41
3:F:158:THR:OG1	3:F:161:LYS:HG3	2.21	0.41
1:G:324:ARG:HB3	1:G:426:ALA:HA	2.02	0.41
1:G:563:CYS:HB3	1:G:679:LYS:HE2	2.02	0.41
1:J:86:LYS:HE3	1:J:86:LYS:HB3	1.82	0.41
1:J:254:LYS:HE3	1:J:254:LYS:HB2	1.71	0.41
1:J:866:LEU:HD21	1:J:876:ALA:HB1	2.03	0.41
2:K:9:SER:N	2:K:197:GLU:OE1	2.54	0.41
1:A:578:LYS:NZ	1:A:582:GLN:OE1	2.48	0.41
2:B:46:PHE:CZ	2:B:349:ARG:HG2	2.56	0.41
3:C:52:ARG:NH1	3:C:88:VAL:O	2.54	0.41
1:J:396:LEU:HD13	1:J:429:ILE:HD13	2.03	0.41
1:A:440:GLU:H	1:A:440:GLU:CD	2.25	0.40
2:B:193:ARG:HE	2:B:193:ARG:HB2	1.66	0.40
1:G:785:GLN:HB2	1:G:986:LEU:HD12	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:I:88:VAL:HG13	3:I:131:THR:HG21	2.02	0.40
1:J:785:GLN:HB2	1:J:986:LEU:HD12	2.03	0.40
1:A:576:LEU:O	1:A:580:VAL:HG13	2.21	0.40
3:C:55:PRO:HD2	3:C:58:ALA:HB3	2.02	0.40
2:E:406:THR:HA	2:E:410:ALA:O	2.21	0.40
2:E:551:ILE:HG12	2:E:561:ILE:HD13	2.03	0.40
1:G:733:TYR:HB2	1:G:1046:PHE:HZ	1.87	0.40
2:H:334:LYS:HD2	2:H:334:LYS:HA	1.75	0.40
3:I:124:THR:HG22	3:I:131:THR:HG23	2.03	0.40
2:K:182:ALA:HB1	2:K:196:LEU:HD11	2.04	0.40
1:D:326:LEU:HD23	1:D:350:THR:HB	2.04	0.40
2:E:75:GLU:HA	2:E:79:ILE:HB	2.02	0.40
3:F:140:CYS:HB2	3:F:143:LEU:HD12	2.04	0.40
1:G:368:ASN:O	1:G:372:GLU:HG3	2.22	0.40
1:A:42:LYS:HB2	1:A:42:LYS:HE3	1.78	0.40
1:A:848:ASN:ND2	1:A:951:ASP:OD2	2.53	0.40
2:B:394:ASP:OD1	2:B:395:LEU:HG	2.22	0.40
1:D:114:CYS:HA	1:D:117:TYR:CE2	2.57	0.40
1:D:630:CYS:HB3	3:F:69:LYS:HE2	2.03	0.40
1:D:647:PHE:CE2	3:F:70:LYS:HB3	2.56	0.40
1:G:866:LEU:HD21	1:G:876:ALA:HB1	2.04	0.40
2:H:27:LEU:HD23	2:H:27:LEU:HA	1.89	0.40
2:H:50:LEU:HD22	2:H:61:THR:HG22	2.03	0.40
3:I:69:LYS:O	3:I:73:ILE:HG12	2.22	0.40
1:J:733:TYR:HB2	1:J:1046:PHE:HZ	1.87	0.40
2:K:401:ASP:OD1	2:K:402:TYR:N	2.54	0.40
2:B:85:ASP:H	2:B:88:ILE:HG13	1.86	0.40
2:B:545:LYS:HG3	2:B:575:VAL:HG11	2.03	0.40
1:D:238:TYR:CD1	1:D:239:ARG:HG3	2.56	0.40
1:D:898:ALA:O	1:D:902:MET:HG2	2.21	0.40
2:E:401:ASP:OD1	2:E:402:TYR:N	2.55	0.40
1:G:146:VAL:HG11	1:G:235:ILE:HG21	2.03	0.40
2:K:441:SER:OG	2:K:448:CYS:SG	2.67	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	1176/1178 (100%)	1143 (97%)	33 (3%)	0	100	100
1	D	1176/1178 (100%)	1143 (97%)	33 (3%)	0	100	100
1	G	1176/1178 (100%)	1143 (97%)	33 (3%)	0	100	100
1	J	1176/1178 (100%)	1143 (97%)	33 (3%)	0	100	100
2	B	582/584 (100%)	565 (97%)	17 (3%)	0	100	100
2	E	582/584 (100%)	567 (97%)	15 (3%)	0	100	100
2	H	582/584 (100%)	566 (97%)	16 (3%)	0	100	100
2	K	582/584 (100%)	570 (98%)	12 (2%)	0	100	100
3	C	153/176 (87%)	150 (98%)	3 (2%)	0	100	100
3	F	153/176 (87%)	149 (97%)	4 (3%)	0	100	100
3	I	153/176 (87%)	149 (97%)	4 (3%)	0	100	100
3	L	153/176 (87%)	149 (97%)	4 (3%)	0	100	100
All	All	7644/7752 (99%)	7437 (97%)	207 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	988/988 (100%)	964 (98%)	24 (2%)	44	73
1	D	988/988 (100%)	967 (98%)	21 (2%)	48	76

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	G	988/988 (100%)	968 (98%)	20 (2%)	50 78
1	J	988/988 (100%)	966 (98%)	22 (2%)	47 76
2	B	477/477 (100%)	462 (97%)	15 (3%)	35 64
2	E	477/477 (100%)	462 (97%)	15 (3%)	35 64
2	H	477/477 (100%)	461 (97%)	16 (3%)	32 61
2	K	477/477 (100%)	459 (96%)	18 (4%)	28 56
3	C	134/154 (87%)	129 (96%)	5 (4%)	29 58
3	F	134/154 (87%)	131 (98%)	3 (2%)	47 76
3	I	134/154 (87%)	129 (96%)	5 (4%)	29 58
3	L	134/154 (87%)	130 (97%)	4 (3%)	36 65
All	All	6396/6476 (99%)	6228 (97%)	168 (3%)	42 70

All (168) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	17	GLU
1	A	95	GLU
1	A	161	ASP
1	A	175	ASP
1	A	277	ASN
1	A	291	SER
1	A	324	ARG
1	A	360	MET
1	A	389	ASP
1	A	399	GLN
1	A	400	ARG
1	A	402	ARG
1	A	405	ASP
1	A	435	GLN
1	A	454	LYS
1	A	515	ASP
1	A	630	CYS
1	A	695	CYS
1	A	757	ASP
1	A	803	ASP
1	A	811	ASP
1	A	926	ASN
1	A	1020	SER

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Mol	Chain	Res	Type
1	A	1116	MET
2	B	17	ASN
2	B	77	HIS
2	B	154	ARG
2	B	169	ARG
2	B	180	CYS
2	B	191	MET
2	B	333	GLU
2	B	375	ASP
2	B	404	SER
2	B	431	ARG
2	B	442	CYS
2	B	447	TYR
2	B	468	ARG
2	B	488	CYS
2	B	506	LYS
3	C	38	SER
3	C	57	ASP
3	C	142	SER
3	C	148	MET
3	C	170	TYR
1	D	161	ASP
1	D	175	ASP
1	D	291	SER
1	D	324	ARG
1	D	360	MET
1	D	389	ASP
1	D	399	GLN
1	D	402	ARG
1	D	405	ASP
1	D	435	GLN
1	D	454	LYS
1	D	515	ASP
1	D	591	SER
1	D	630	CYS
1	D	695	CYS
1	D	757	ASP
1	D	803	ASP
1	D	926	ASN
1	D	982	LYS
1	D	1020	SER
1	D	1116	MET

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Mol	Chain	Res	Type
2	E	17	ASN
2	E	47	PHE
2	E	69	MET
2	E	77	HIS
2	E	110	CYS
2	E	152	ARG
2	E	193	ARG
2	E	333	GLU
2	E	336	LYS
2	E	375	ASP
2	E	440	GLU
2	E	442	CYS
2	E	488	CYS
2	E	506	LYS
2	E	559	HIS
3	F	142	SER
3	F	156	LYS
3	F	170	TYR
1	G	17	GLU
1	G	175	ASP
1	G	277	ASN
1	G	291	SER
1	G	324	ARG
1	G	360	MET
1	G	389	ASP
1	G	399	GLN
1	G	402	ARG
1	G	405	ASP
1	G	454	LYS
1	G	630	CYS
1	G	695	CYS
1	G	757	ASP
1	G	803	ASP
1	G	811	ASP
1	G	831	ASP
1	G	926	ASN
1	G	1020	SER
1	G	1116	MET
2	H	17	ASN
2	H	47	PHE
2	H	69	MET
2	H	77	HIS

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Mol	Chain	Res	Type
2	H	110	CYS
2	H	152	ARG
2	H	169	ARG
2	H	191	MET
2	H	193	ARG
2	H	333	GLU
2	H	375	ASP
2	H	447	TYR
2	H	469	ASP
2	H	488	CYS
2	H	506	LYS
2	H	559	HIS
3	I	30	LEU
3	I	57	ASP
3	I	142	SER
3	I	156	LYS
3	I	170	TYR
1	J	161	ASP
1	J	175	ASP
1	J	291	SER
1	J	324	ARG
1	J	360	MET
1	J	389	ASP
1	J	399	GLN
1	J	402	ARG
1	J	405	ASP
1	J	454	LYS
1	J	515	ASP
1	J	591	SER
1	J	630	CYS
1	J	695	CYS
1	J	717	GLN
1	J	757	ASP
1	J	803	ASP
1	J	811	ASP
1	J	926	ASN
1	J	982	LYS
1	J	1020	SER
1	J	1116	MET
2	K	17	ASN
2	K	33	ASP
2	K	47	PHE

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Mol	Chain	Res	Type
2	K	69	MET
2	K	77	HIS
2	K	110	CYS
2	K	117	ASP
2	K	152	ARG
2	K	169	ARG
2	K	191	MET
2	K	193	ARG
2	K	333	GLU
2	K	375	ASP
2	K	442	CYS
2	K	484	ASP
2	K	488	CYS
2	K	506	LYS
2	K	578	PHE
3	L	56	LEU
3	L	57	ASP
3	L	142	SER
3	L	170	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	768	GLN
2	B	512	HIS

5.3.3 RNA (i)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains (i)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 60 ligands modelled in this entry, 8 are monoatomic - leaving 52 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
5	SF4	D	1202	1	0,12,12	-	-	-		
5	SF4	B	602	2	0,12,12	-	-	-		
5	SF4	D	1207	1	0,12,12	-	-	-		
5	SF4	G	1202	1	0,12,12	-	-	-		
4	FES	G	1201	1	0,4,4	-	-	-		
5	SF4	D	1203	1	0,12,12	-	-	-		
5	SF4	H	604	2	0,12,12	-	-	-		
5	SF4	A	1204	1	0,12,12	-	-	-		
4	FES	L	201	3	0,4,4	-	-	-		
5	SF4	G	1206	1	0,12,12	-	-	-		
6	FAD	D	1208	-	54,58,58	1.41	5 (9%)	71,89,89	0.98	2 (2%)
5	SF4	J	1203	1	0,12,12	-	-	-		
5	SF4	K	604	2	0,12,12	-	-	-		
4	FES	A	1201	1	0,4,4	-	-	-		
6	FAD	G	1208	-	54,58,58	1.41	5 (9%)	71,89,89	0.98	2 (2%)
5	SF4	D	1205	1	0,12,12	-	-	-		
5	SF4	E	604	2	0,12,12	-	-	-		
5	SF4	K	605	2	0,12,12	-	-	-		
5	SF4	D	1204	1	0,12,12	-	-	-		
5	SF4	E	602	2	0,12,12	-	-	-		
5	SF4	A	1206	1	0,12,12	-	-	-		
5	SF4	A	1203	1	0,12,12	-	-	-		
4	FES	F	201	3	0,4,4	-	-	-		
6	FAD	J	1208	-	54,58,58	1.42	5 (9%)	71,89,89	0.99	2 (2%)
5	SF4	D	1206	1	0,12,12	-	-	-		
5	SF4	G	1204	1	0,12,12	-	-	-		
4	FES	D	1201	1	0,4,4	-	-	-		
5	SF4	J	1204	1	0,12,12	-	-	-		
7	FMN	K	601	-	33,33,33	1.06	2 (6%)	48,50,50	1.24	7 (14%)
4	FES	I	201	3	0,4,4	-	-	-		
5	SF4	K	602	2	0,12,12	-	-	-		

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
5	SF4	G	1203	1	0,12,12	-	-	-		
7	FMN	E	601	-	33,33,33	1.07	2 (6%)	48,50,50	1.22	8 (16%)
6	FAD	A	1208	-	54,58,58	1.41	5 (9%)	71,89,89	0.98	2 (2%)
5	SF4	H	602	2	0,12,12	-	-	-		
5	SF4	G	1207	1	0,12,12	-	-	-		
5	SF4	J	1205	1	0,12,12	-	-	-		
5	SF4	J	1206	1	0,12,12	-	-	-		
7	FMN	H	601	-	33,33,33	1.09	2 (6%)	48,50,50	1.23	7 (14%)
4	FES	C	201	3	0,4,4	-	-	-		
5	SF4	G	1205	1	0,12,12	-	-	-		
7	FMN	B	601	-	33,33,33	1.08	2 (6%)	48,50,50	1.26	7 (14%)
5	SF4	J	1202	1	0,12,12	-	-	-		
5	SF4	B	604	2	0,12,12	-	-	-		
5	SF4	J	1207	1	0,12,12	-	-	-		
5	SF4	A	1205	1	0,12,12	-	-	-		
5	SF4	H	605	2	0,12,12	-	-	-		
4	FES	J	1201	1	0,4,4	-	-	-		
5	SF4	A	1202	1	0,12,12	-	-	-		
5	SF4	B	605	2	0,12,12	-	-	-		
5	SF4	A	1207	1	0,12,12	-	-	-		
5	SF4	E	605	2	0,12,12	-	-	-		

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	SF4	D	1202	1	-	-	0/6/5/5
5	SF4	B	602	2	-	-	0/6/5/5
5	SF4	D	1207	1	-	-	0/6/5/5
5	SF4	G	1202	1	-	-	0/6/5/5
4	FES	G	1201	1	-	-	0/1/1/1
5	SF4	D	1203	1	-	-	0/6/5/5
5	SF4	H	604	2	-	-	0/6/5/5
4	FES	L	201	3	-	-	0/1/1/1
5	SF4	A	1204	1	-	-	0/6/5/5
5	SF4	G	1206	1	-	-	0/6/5/5
6	FAD	D	1208	-	-	4/30/50/50	0/6/6/6
5	SF4	A	1207	1	-	-	0/6/5/5
5	SF4	J	1203	1	-	-	0/6/5/5

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	FES	A	1201	1	-	-	0/1/1/1
6	FAD	G	1208	-	-	4/30/50/50	0/6/6/6
5	SF4	D	1205	1	-	-	0/6/5/5
5	SF4	E	604	2	-	-	0/6/5/5
5	SF4	K	604	2	-	-	0/6/5/5
5	SF4	K	605	2	-	-	0/6/5/5
5	SF4	D	1204	1	-	-	0/6/5/5
5	SF4	E	602	2	-	-	0/6/5/5
5	SF4	A	1206	1	-	-	0/6/5/5
5	SF4	A	1203	1	-	-	0/6/5/5
6	FAD	J	1208	-	-	4/30/50/50	0/6/6/6
4	FES	F	201	3	-	-	0/1/1/1
5	SF4	D	1206	1	-	-	0/6/5/5
5	SF4	G	1204	1	-	-	0/6/5/5
4	FES	D	1201	1	-	-	0/1/1/1
5	SF4	J	1204	1	-	-	0/6/5/5
7	FMN	K	601	-	-	7/18/18/18	0/3/3/3
4	FES	I	201	3	-	-	0/1/1/1
7	FMN	E	601	-	-	13/18/18/18	0/3/3/3
5	SF4	G	1203	1	-	-	0/6/5/5
5	SF4	K	602	2	-	-	0/6/5/5
5	SF4	H	602	2	-	-	0/6/5/5
7	FMN	H	601	-	-	15/18/18/18	0/3/3/3
5	SF4	G	1207	1	-	-	0/6/5/5
5	SF4	J	1205	1	-	-	0/6/5/5
5	SF4	J	1206	1	-	-	0/6/5/5
4	FES	C	201	3	-	-	0/1/1/1
5	SF4	G	1205	1	-	-	0/6/5/5
7	FMN	B	601	-	-	7/18/18/18	0/3/3/3
5	SF4	J	1202	1	-	-	0/6/5/5
5	SF4	B	604	2	-	-	0/6/5/5
5	SF4	J	1207	1	-	-	0/6/5/5
5	SF4	A	1205	1	-	-	0/6/5/5
5	SF4	H	605	2	-	-	0/6/5/5
4	FES	J	1201	1	-	-	0/1/1/1
5	SF4	A	1202	1	-	-	0/6/5/5
5	SF4	B	605	2	-	-	0/6/5/5
6	FAD	A	1208	-	-	4/30/50/50	0/6/6/6
5	SF4	E	605	2	-	-	0/6/5/5

All (28) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	J	1208	FAD	P-O3P	6.35	1.66	1.59
6	A	1208	FAD	P-O3P	6.31	1.66	1.59
6	D	1208	FAD	P-O3P	6.28	1.66	1.59
6	G	1208	FAD	P-O3P	6.23	1.66	1.59
6	J	1208	FAD	PA-O3P	3.78	1.63	1.59
6	A	1208	FAD	PA-O3P	3.78	1.63	1.59
6	D	1208	FAD	PA-O3P	3.77	1.63	1.59
6	G	1208	FAD	PA-O3P	3.76	1.63	1.59
7	E	601	FMN	C4A-N5	3.39	1.38	1.30
7	H	601	FMN	C4A-N5	3.37	1.38	1.30
7	B	601	FMN	C4A-N5	3.36	1.38	1.30
7	K	601	FMN	C4A-N5	3.33	1.37	1.30
6	G	1208	FAD	C8A-N7A	-2.51	1.30	1.34
6	J	1208	FAD	C8A-N7A	-2.51	1.30	1.34
6	A	1208	FAD	C8A-N7A	-2.48	1.30	1.34
6	D	1208	FAD	C8A-N7A	-2.48	1.30	1.34
6	D	1208	FAD	C1B-N9A	-2.42	1.43	1.49
7	H	601	FMN	C10-N1	2.42	1.38	1.33
6	J	1208	FAD	C1B-N9A	-2.42	1.43	1.49
6	G	1208	FAD	C1B-N9A	-2.42	1.43	1.49
6	A	1208	FAD	C1B-N9A	-2.41	1.44	1.49
7	E	601	FMN	C10-N1	2.40	1.38	1.33
6	A	1208	FAD	C5X-N5	-2.32	1.35	1.39
6	G	1208	FAD	C5X-N5	-2.31	1.35	1.39
7	K	601	FMN	C10-N1	2.31	1.37	1.33
7	B	601	FMN	C10-N1	2.30	1.37	1.33
6	D	1208	FAD	C5X-N5	-2.28	1.35	1.39
6	J	1208	FAD	C5X-N5	-2.28	1.35	1.39

All (37) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	J	1208	FAD	C4B-O4B-C1B	-4.47	105.83	109.92
6	A	1208	FAD	C4B-O4B-C1B	-4.39	105.90	109.92
6	G	1208	FAD	C4B-O4B-C1B	-4.38	105.91	109.92
6	D	1208	FAD	C4B-O4B-C1B	-4.37	105.92	109.92
7	E	601	FMN	C4-N3-C2	-3.30	119.78	125.64
7	K	601	FMN	C4-N3-C2	-3.30	119.78	125.64
7	B	601	FMN	C4-N3-C2	-3.28	119.82	125.64
7	H	601	FMN	C4-N3-C2	-3.26	119.85	125.64
7	K	601	FMN	C4A-C10-N10	2.93	120.67	116.48
7	B	601	FMN	C4A-C10-N10	2.87	120.59	116.48
7	E	601	FMN	C4A-C4-N3	2.69	120.09	113.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	H	601	FMN	C4A-C10-N10	2.67	120.31	116.48
7	K	601	FMN	C4A-C4-N3	2.63	119.94	113.25
7	E	601	FMN	C4A-C10-N10	2.63	120.24	116.48
7	B	601	FMN	C4A-C4-N3	2.62	119.93	113.25
7	H	601	FMN	O4-C4-C4A	-2.62	119.62	126.53
7	H	601	FMN	C4A-C4-N3	2.59	119.86	113.25
7	E	601	FMN	O4-C4-C4A	-2.55	119.80	126.53
7	B	601	FMN	O4-C4-C4A	-2.52	119.88	126.53
7	K	601	FMN	O4-C4-C4A	-2.50	119.94	126.53
7	B	601	FMN	C5A-C9A-N10	2.38	120.12	117.97
7	B	601	FMN	C10-C4A-N5	-2.33	120.05	124.81
7	E	601	FMN	C5A-C9A-N10	2.33	120.07	117.97
7	K	601	FMN	C5A-C9A-N10	2.30	120.05	117.97
7	K	601	FMN	C10-C4A-N5	-2.29	120.14	124.81
7	H	601	FMN	C10-C4A-N5	-2.28	120.14	124.81
7	H	601	FMN	C5A-C9A-N10	2.27	120.02	117.97
7	E	601	FMN	C10-C4A-N5	-2.26	120.19	124.81
6	A	1208	FAD	O2P-P-O1P	2.19	122.62	112.44
6	G	1208	FAD	O2P-P-O1P	2.18	122.58	112.44
6	D	1208	FAD	O2P-P-O1P	2.18	122.57	112.44
6	J	1208	FAD	O2P-P-O1P	2.18	122.57	112.44
7	E	601	FMN	C9A-C5A-N5	-2.10	120.23	122.45
7	K	601	FMN	C4A-C10-N1	-2.10	119.45	124.59
7	H	601	FMN	C9A-C5A-N5	-2.08	120.25	122.45
7	B	601	FMN	C9A-C5A-N5	-2.02	120.31	122.45
7	E	601	FMN	C4A-C10-N1	-2.01	119.66	124.59

There are no chirality outliers.

All (58) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	1208	FAD	N10-C1'-C2'-O2'
6	A	1208	FAD	O4'-C4'-C5'-O5'
6	D	1208	FAD	N10-C1'-C2'-O2'
6	D	1208	FAD	O4'-C4'-C5'-O5'
6	G	1208	FAD	N10-C1'-C2'-O2'
6	G	1208	FAD	O4'-C4'-C5'-O5'
6	J	1208	FAD	N10-C1'-C2'-O2'
6	J	1208	FAD	O4'-C4'-C5'-O5'
7	B	601	FMN	N10-C1'-C2'-O2'
7	B	601	FMN	N10-C1'-C2'-C3'
7	B	601	FMN	C5'-O5'-P-O1P

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Mol	Chain	Res	Type	Atoms
7	B	601	FMN	C5'-O5'-P-O2P
7	B	601	FMN	C5'-O5'-P-O3P
7	E	601	FMN	N10-C1'-C2'-O2'
7	E	601	FMN	N10-C1'-C2'-C3'
7	E	601	FMN	C1'-C2'-C3'-O3'
7	E	601	FMN	C1'-C2'-C3'-C4'
7	E	601	FMN	C2'-C3'-C4'-O4'
7	E	601	FMN	O3'-C3'-C4'-O4'
7	E	601	FMN	C5'-O5'-P-O1P
7	E	601	FMN	C5'-O5'-P-O2P
7	E	601	FMN	C5'-O5'-P-O3P
7	H	601	FMN	N10-C1'-C2'-O2'
7	H	601	FMN	N10-C1'-C2'-C3'
7	H	601	FMN	C1'-C2'-C3'-C4'
7	H	601	FMN	C2'-C3'-C4'-O4'
7	H	601	FMN	O3'-C3'-C4'-O4'
7	H	601	FMN	O3'-C3'-C4'-C5'
7	H	601	FMN	C3'-C4'-C5'-O5'
7	H	601	FMN	O4'-C4'-C5'-O5'
7	H	601	FMN	C5'-O5'-P-O2P
7	H	601	FMN	C5'-O5'-P-O3P
7	K	601	FMN	C5'-O5'-P-O1P
7	K	601	FMN	C5'-O5'-P-O2P
7	K	601	FMN	C5'-O5'-P-O3P
7	E	601	FMN	O3'-C3'-C4'-C5'
7	E	601	FMN	C2'-C3'-C4'-C5'
7	H	601	FMN	C2'-C3'-C4'-C5'
7	K	601	FMN	C2'-C3'-C4'-C5'
7	E	601	FMN	O2'-C2'-C3'-C4'
7	K	601	FMN	O3'-C3'-C4'-O4'
7	K	601	FMN	O3'-C3'-C4'-C5'
7	E	601	FMN	O2'-C2'-C3'-O3'
7	K	601	FMN	C2'-C3'-C4'-O4'
7	H	601	FMN	C5'-O5'-P-O1P
7	H	601	FMN	O2'-C2'-C3'-C4'
7	H	601	FMN	O2'-C2'-C3'-O3'
6	A	1208	FAD	PA-O3P-P-O5'
6	D	1208	FAD	PA-O3P-P-O5'
6	G	1208	FAD	PA-O3P-P-O5'
6	J	1208	FAD	PA-O3P-P-O5'
7	B	601	FMN	O2'-C2'-C3'-C4'
7	H	601	FMN	C1'-C2'-C3'-O3'

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Mol	Chain	Res	Type	Atoms
7	B	601	FMN	O2'-C2'-C3'-O3'
6	A	1208	FAD	P-O3P-PA-O2A
6	D	1208	FAD	P-O3P-PA-O2A
6	G	1208	FAD	P-O3P-PA-O2A
6	J	1208	FAD	P-O3P-PA-O2A

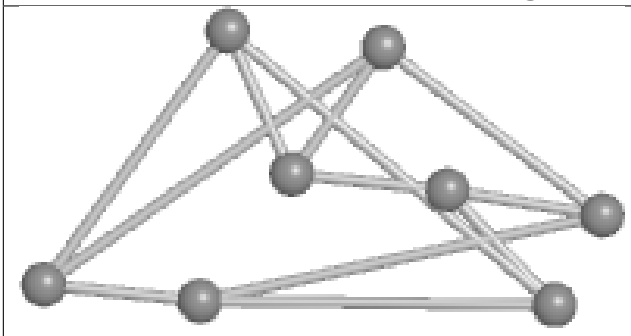
There are no ring outliers.

18 monomers are involved in 33 short contacts:

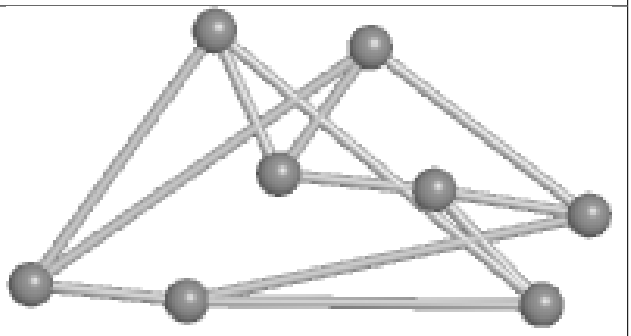
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	602	SF4	1	0
5	H	604	SF4	1	0
6	D	1208	FAD	4	0
5	K	604	SF4	1	0
6	G	1208	FAD	4	0
5	D	1205	SF4	1	0
5	E	604	SF4	1	0
5	E	602	SF4	1	0
6	J	1208	FAD	4	0
7	K	601	FMN	1	0
7	E	601	FMN	3	0
6	A	1208	FAD	4	0
5	H	602	SF4	2	0
5	J	1205	SF4	1	0
5	G	1205	SF4	1	0
5	A	1205	SF4	1	0
5	H	605	SF4	1	0
5	B	605	SF4	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

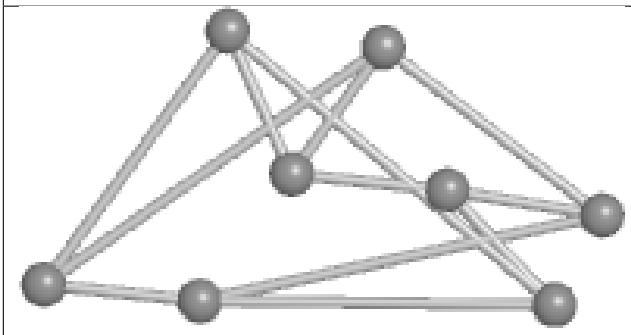
Ligand SF4 D 1202



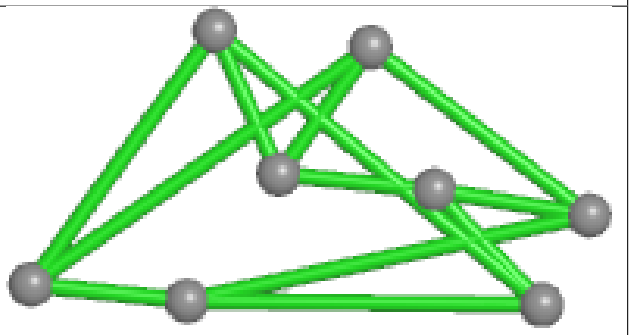
Bond lengths



Bond angles

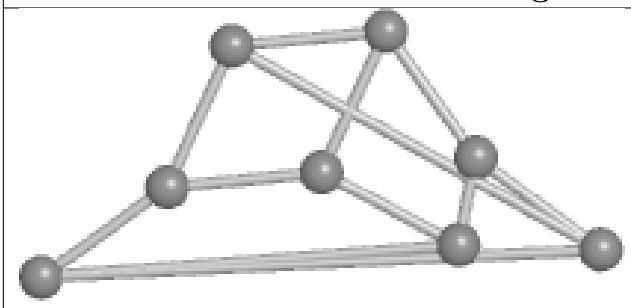


Torsions



Rings

Ligand SF4 B 602



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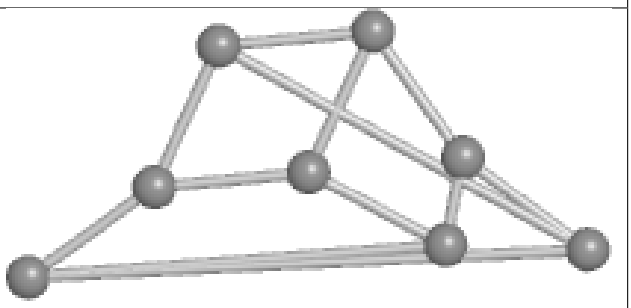
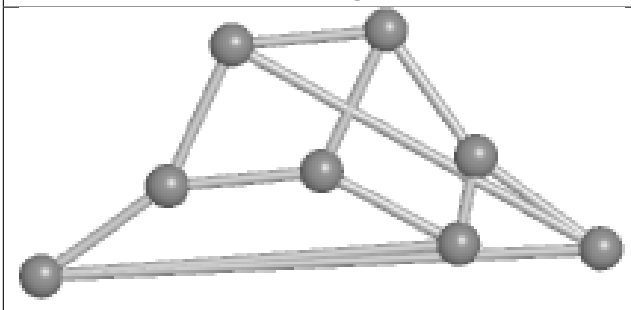


Bond angles



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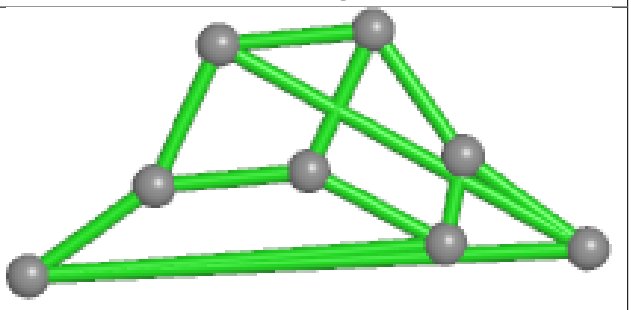
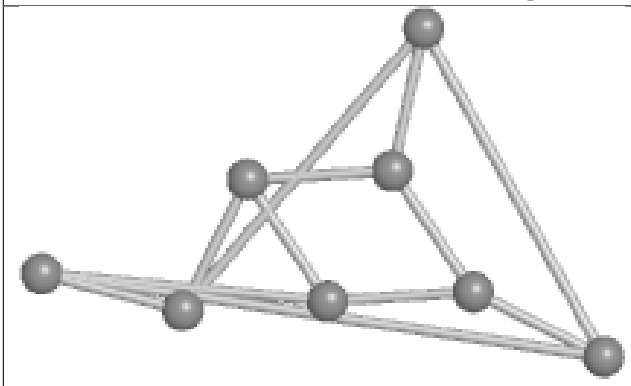
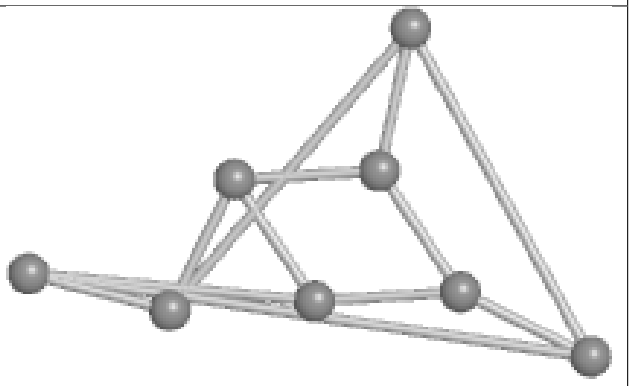


Rings

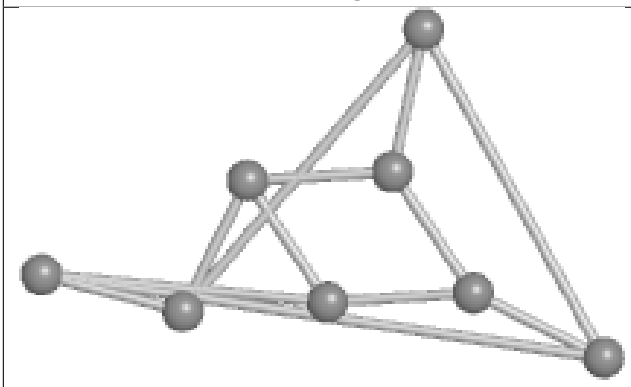
Ligand SF4 D 1207



Bond lengths



Bond angles



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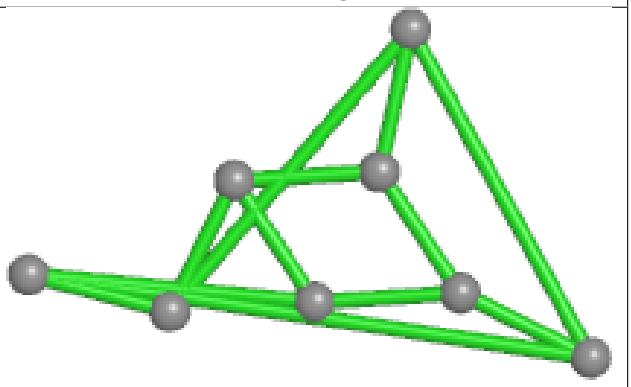
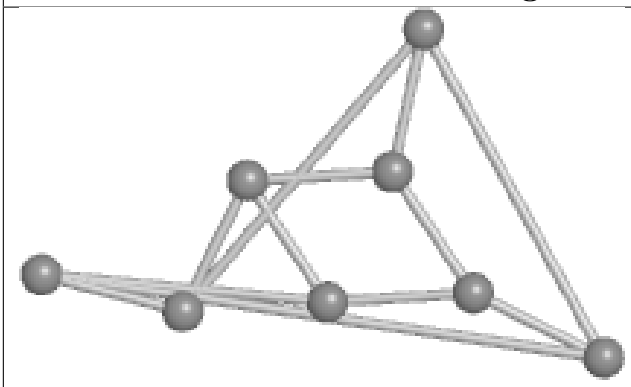


Rings

Ligand SF4 G 1202



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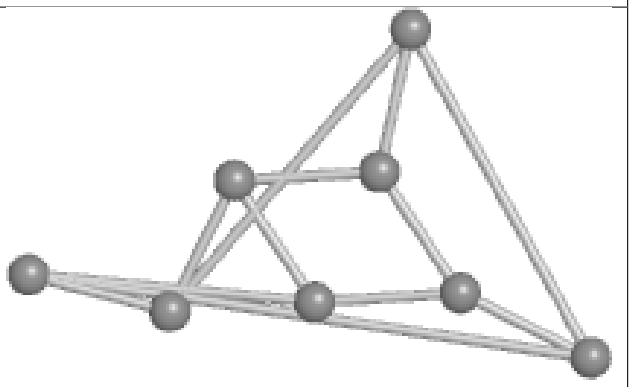
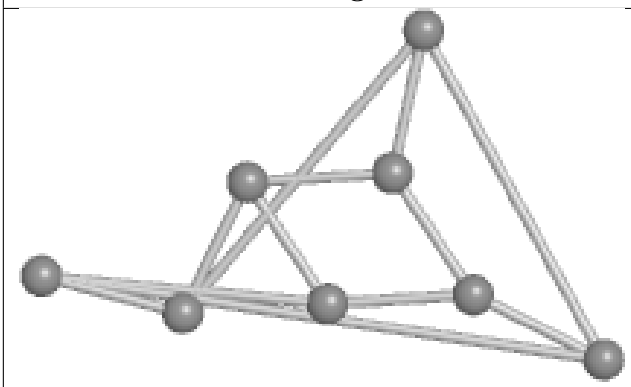
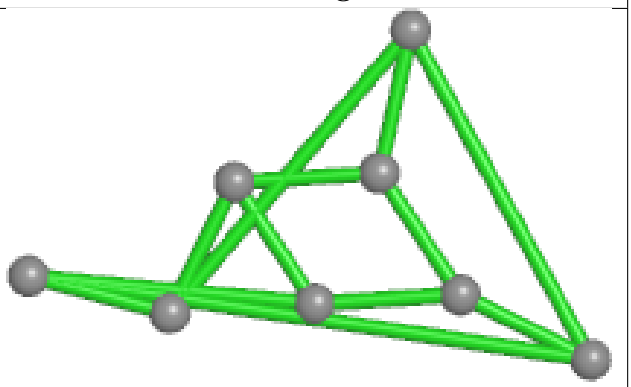


Bond angles

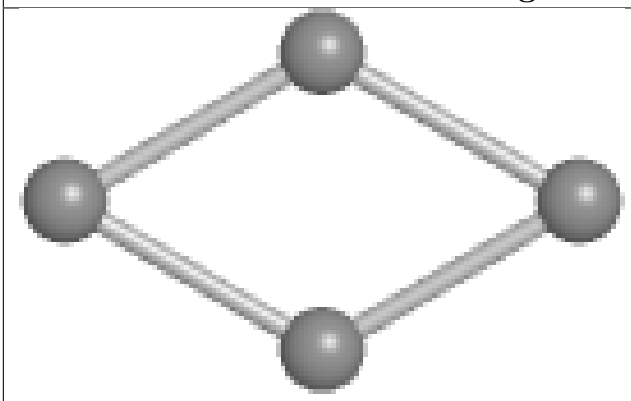


Torsions

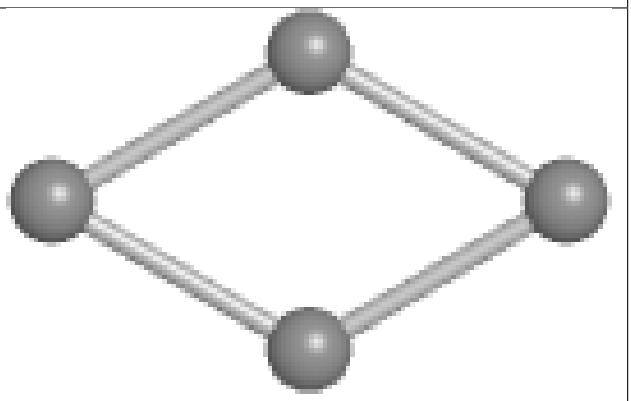


Rings

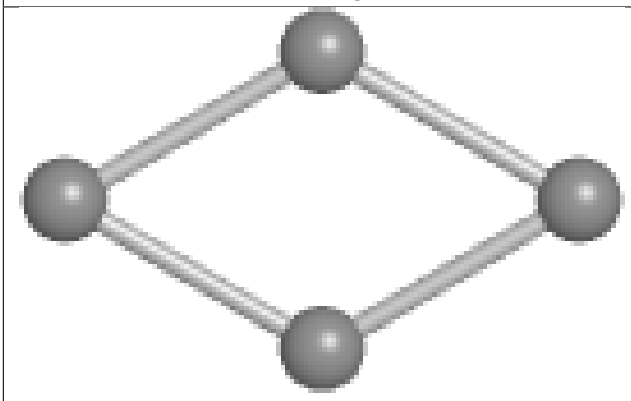
Ligand FES G 1201



Bond lengths



Bond angles



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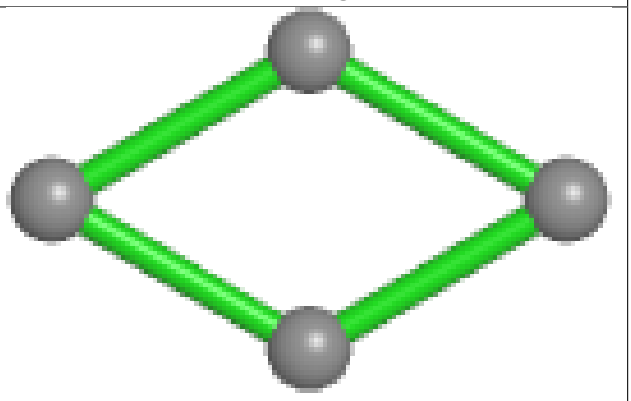
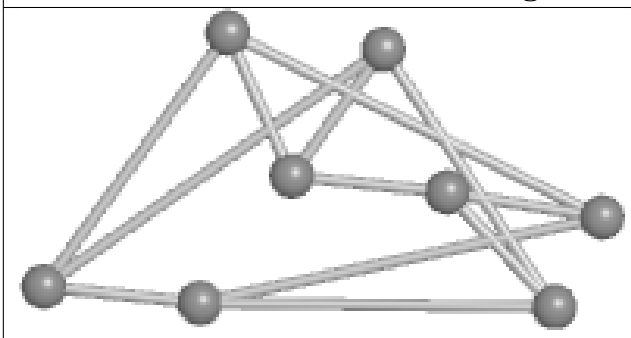
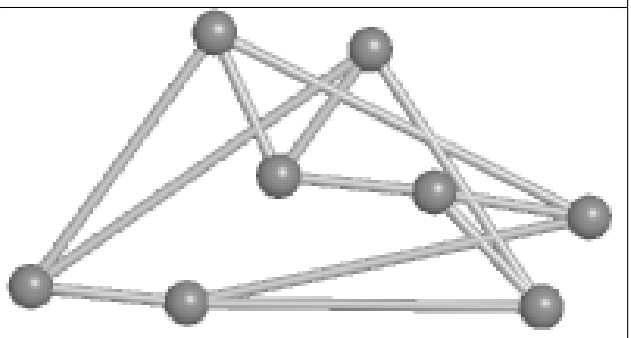


Rings

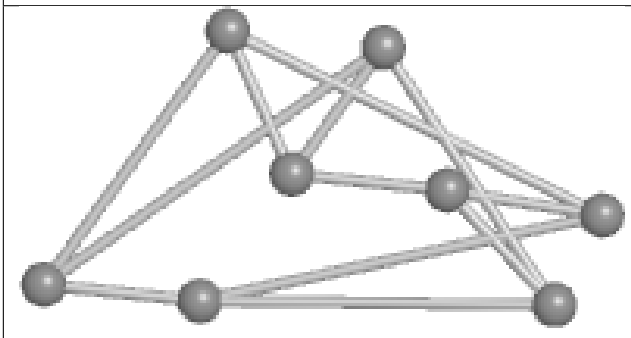
Ligand SF4 D 1203



Bond lengths



Bond angles



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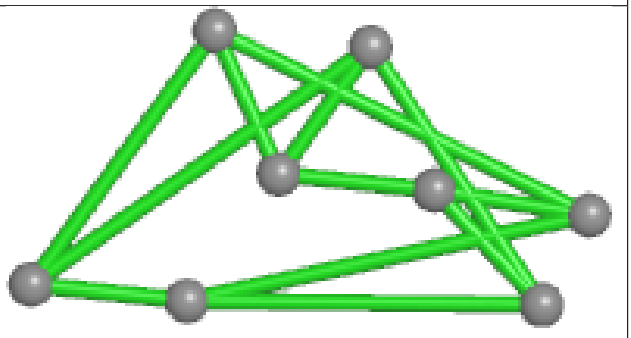
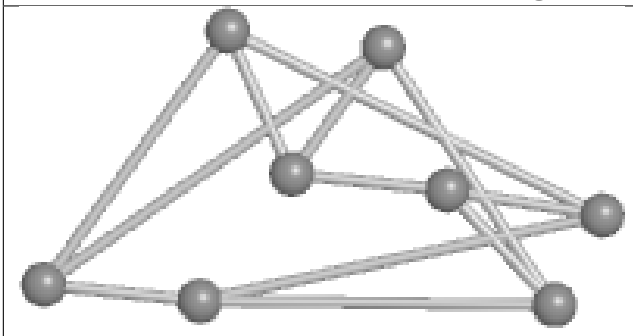
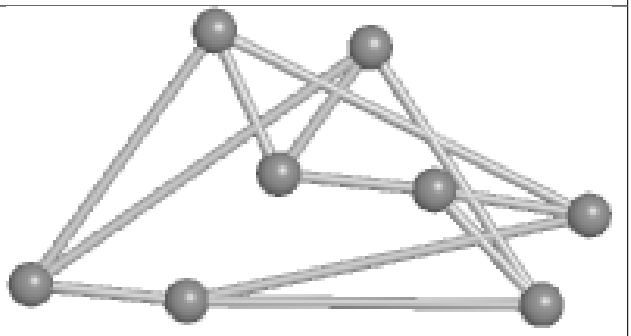


Rings

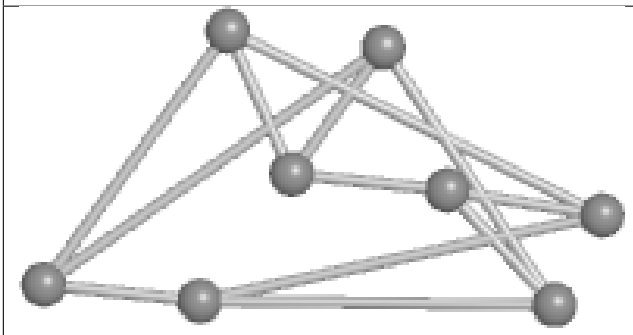
Ligand SF4 H 604



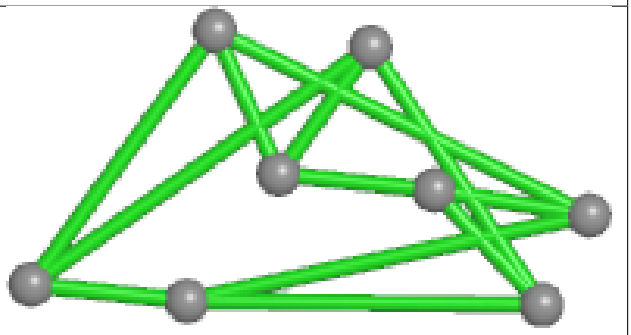
Bond lengths



Bond angles

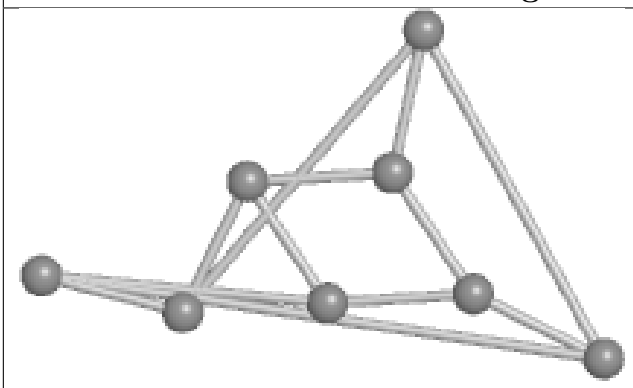


Torsions



Rings

Ligand SF4 A 1204



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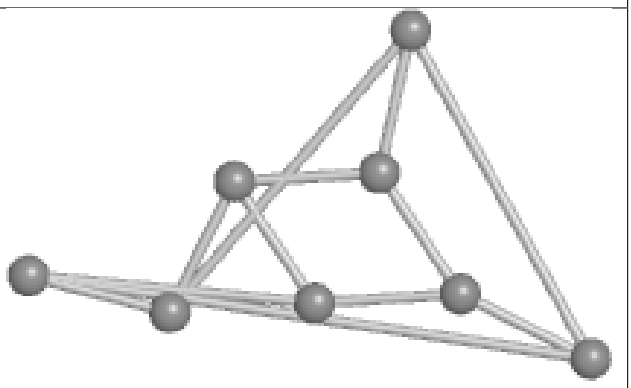
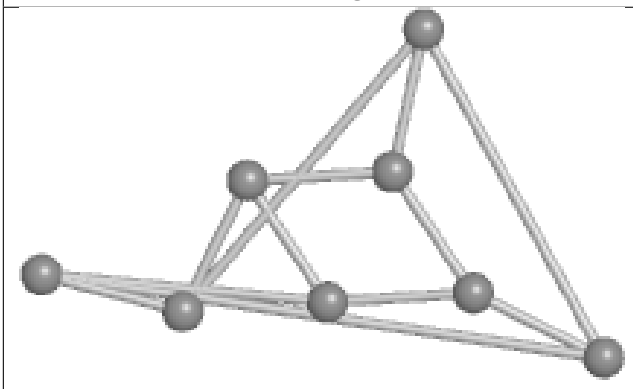
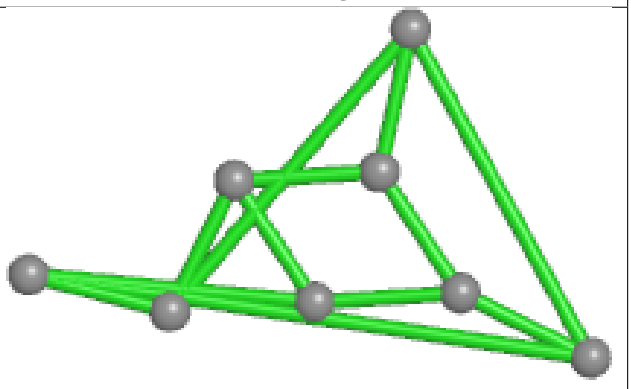


Bond angles

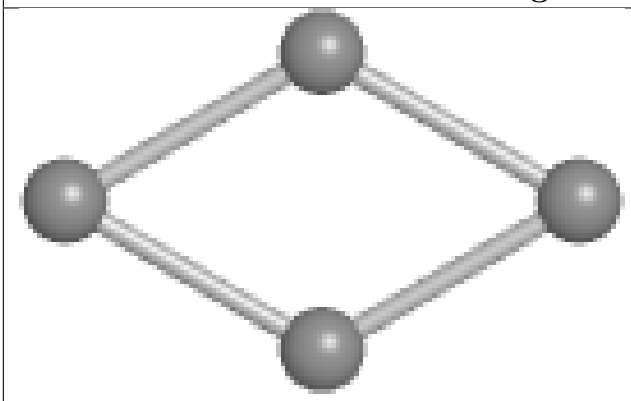


Torsions



Rings

Ligand FES L 201



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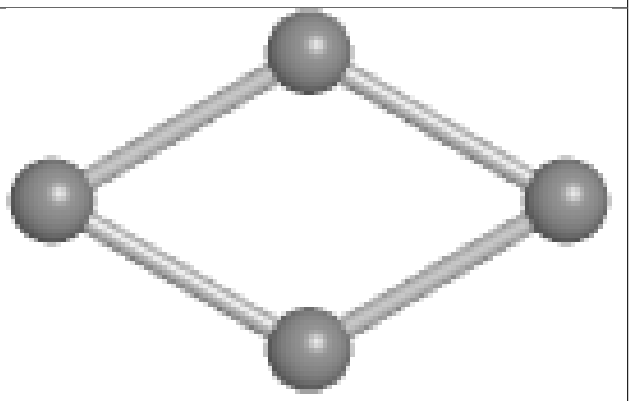
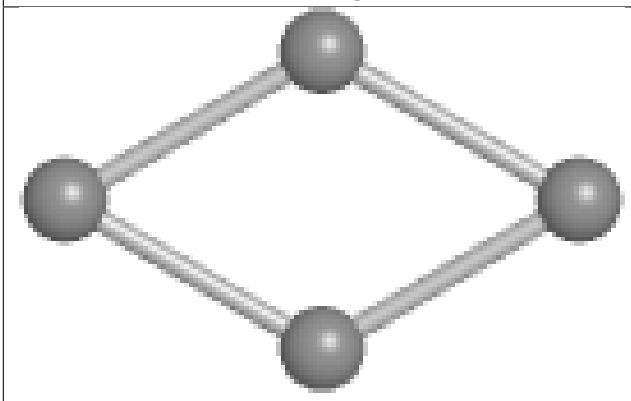
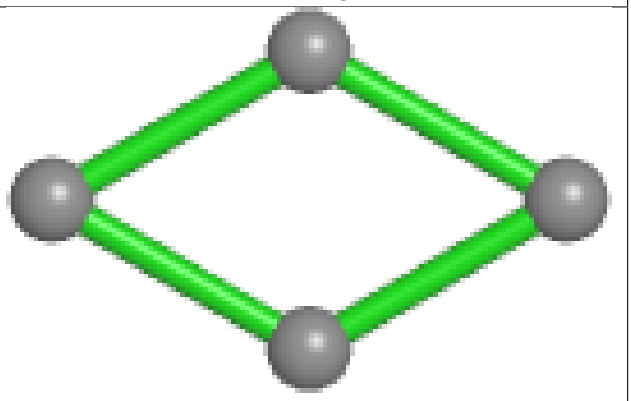


Bond angles

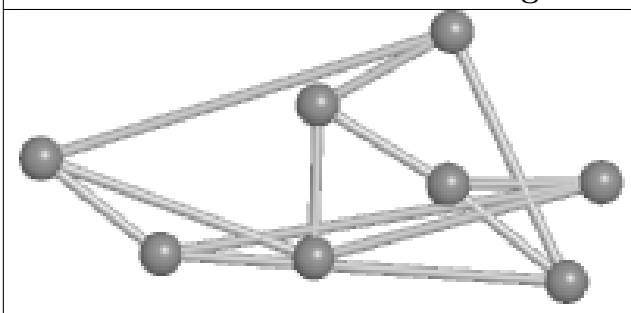


Torsions



Rings

Ligand SF4 G 1206



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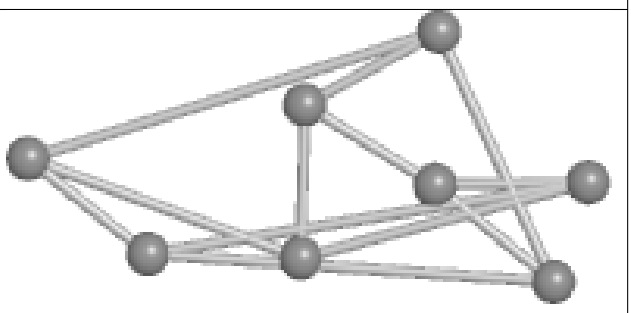
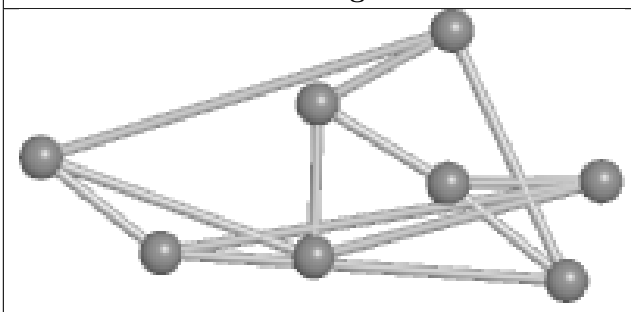
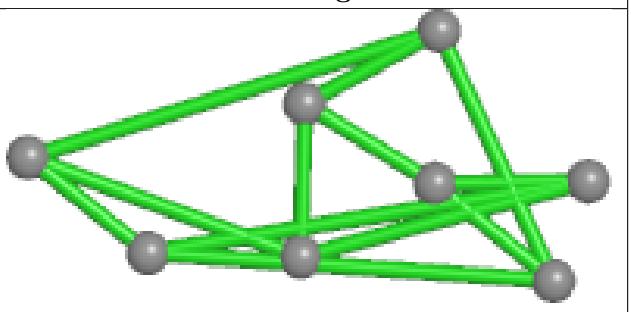


Bond angles

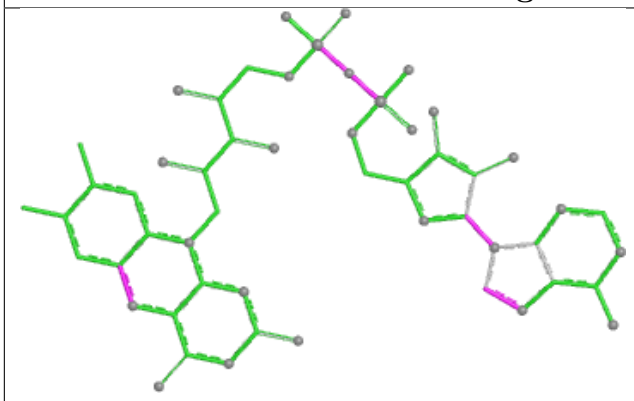


Torsions

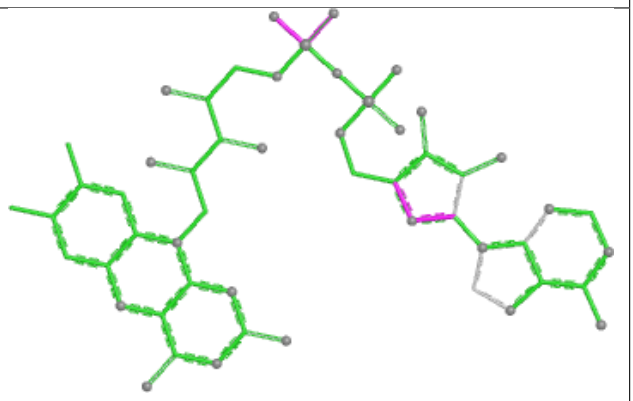


Rings

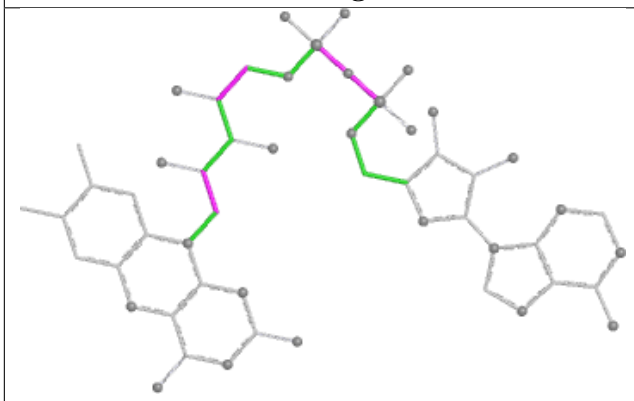
Ligand FAD D 1208



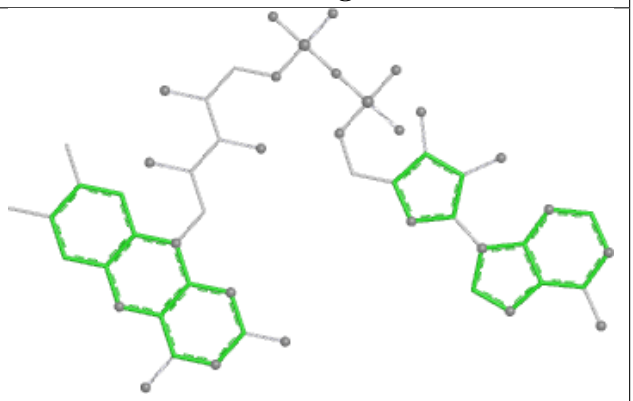
Bond lengths



Bond angles

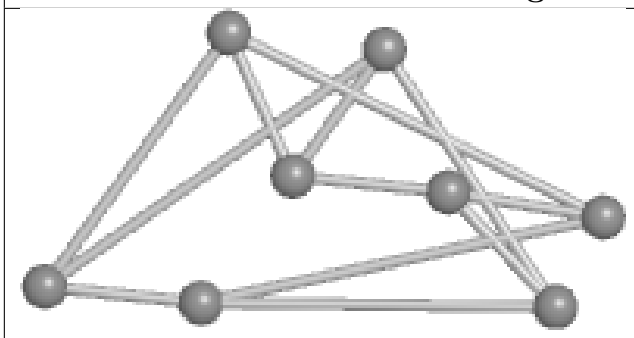


Torsions

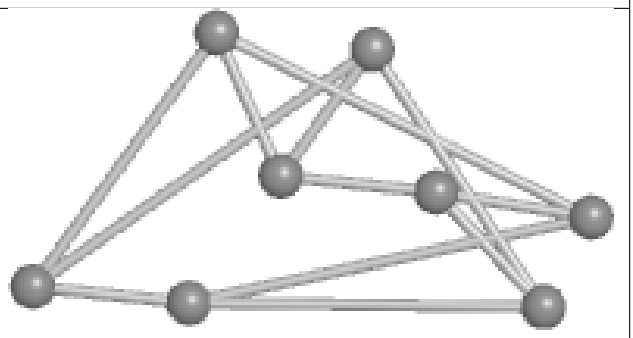


Rings

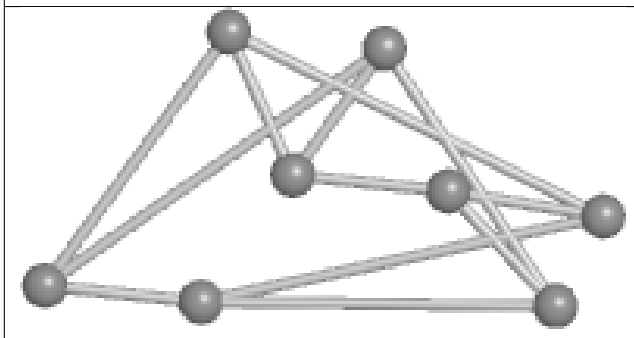
Ligand SF4 J 1203



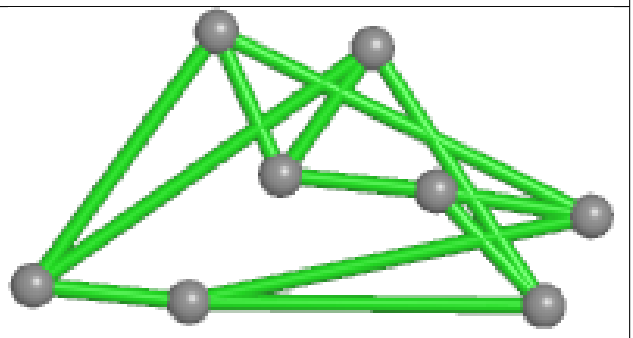
Bond lengths



Bond angles

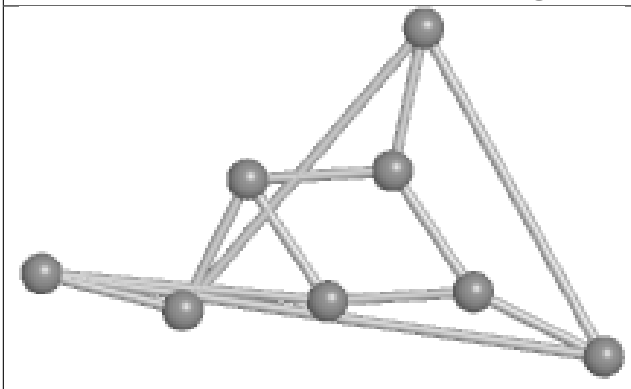


Torsions



Rings

Ligand SF4 K 604



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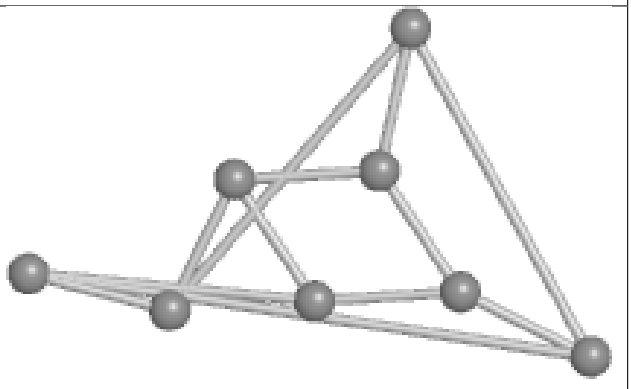
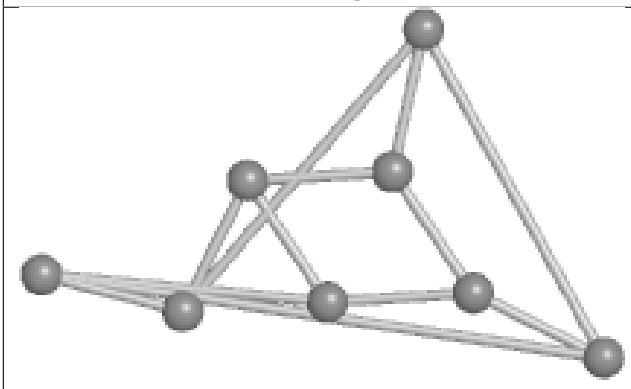
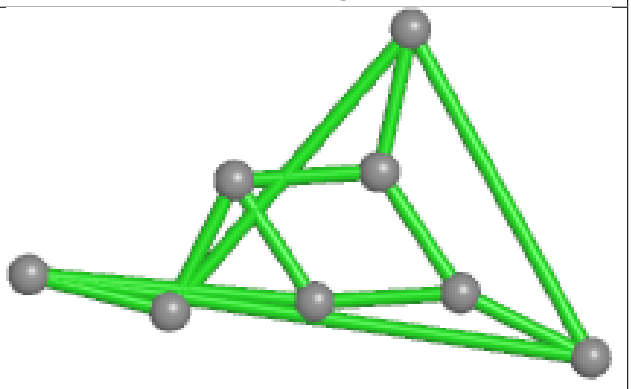


Bond angles

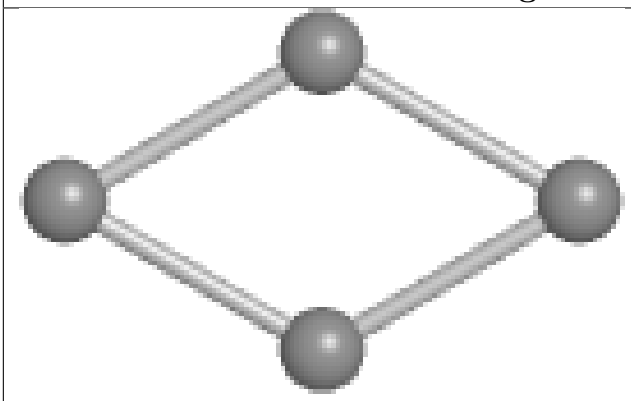


Torsions



Rings

Ligand FES A 1201



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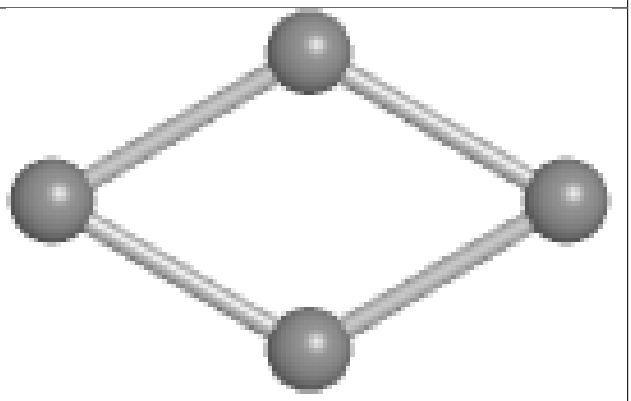
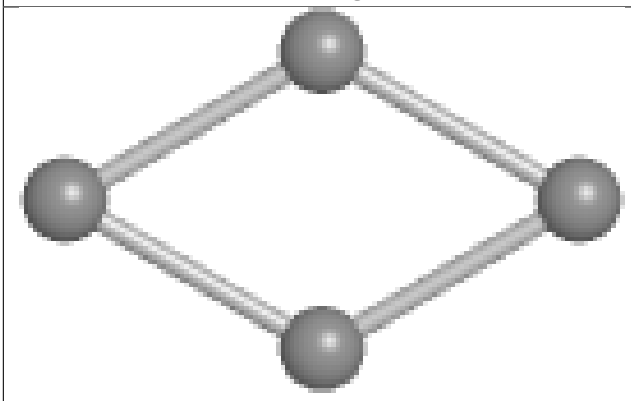
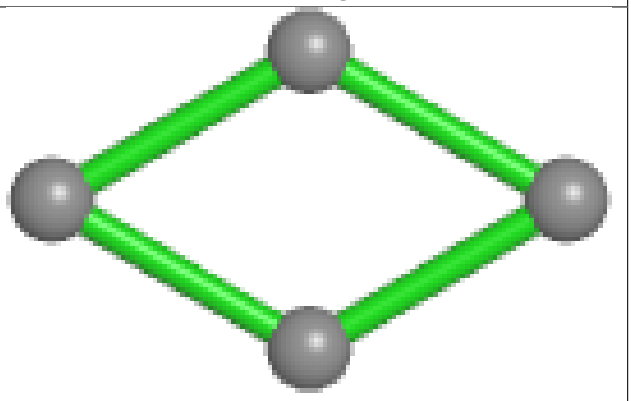


Bond angles

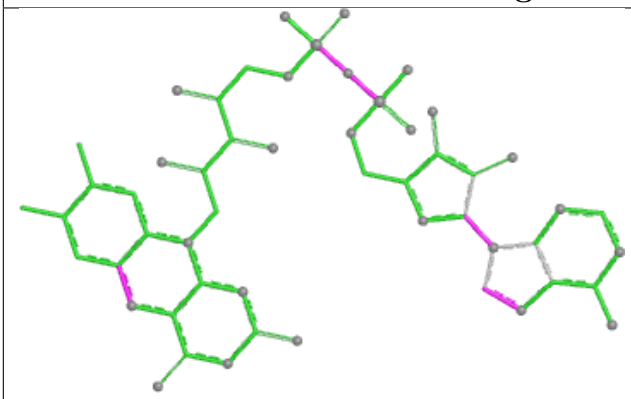


Torsions



Rings

Ligand FAD G 1208



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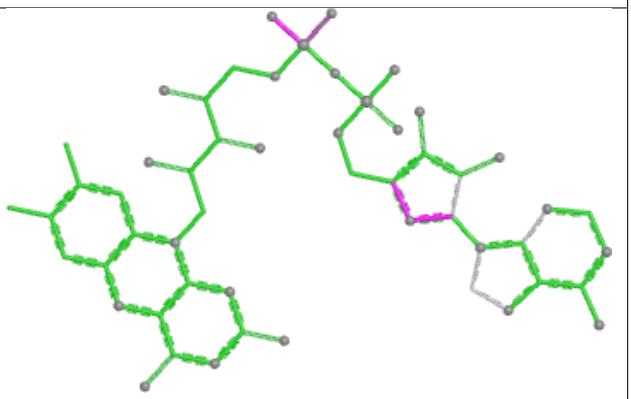
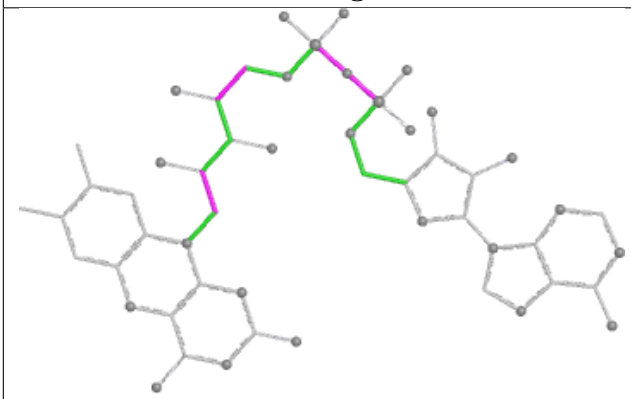
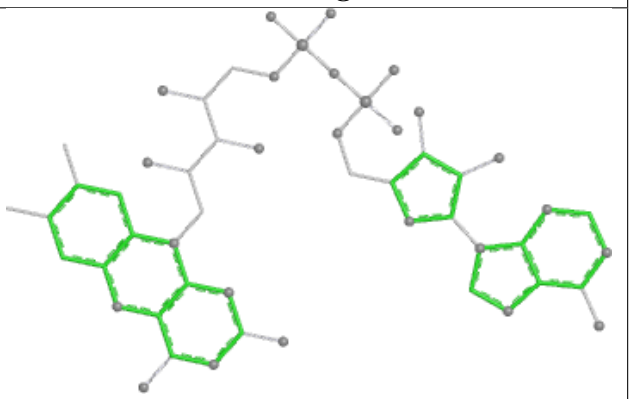


Bond angles

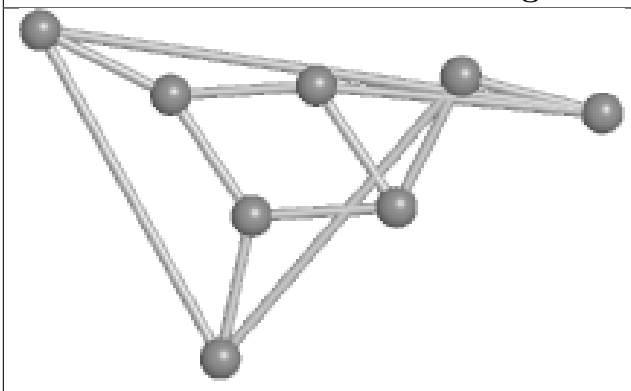


Torsions



Rings

Ligand SF4 D 1205



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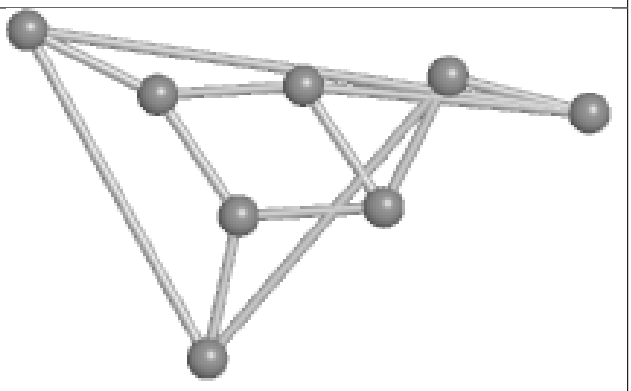
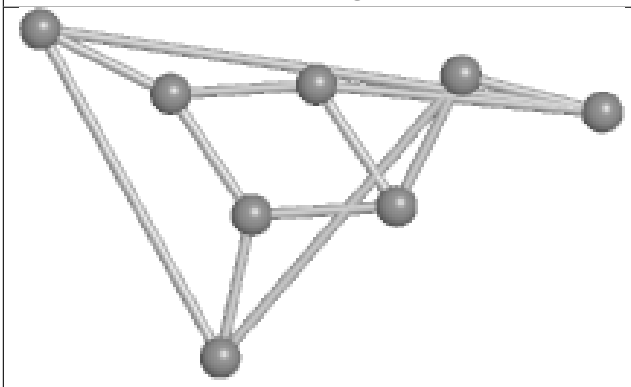
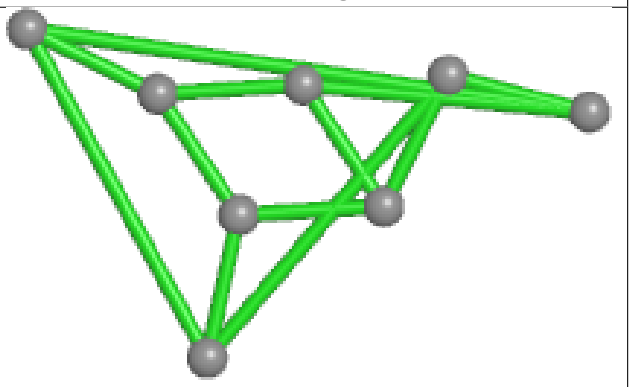


Bond angles

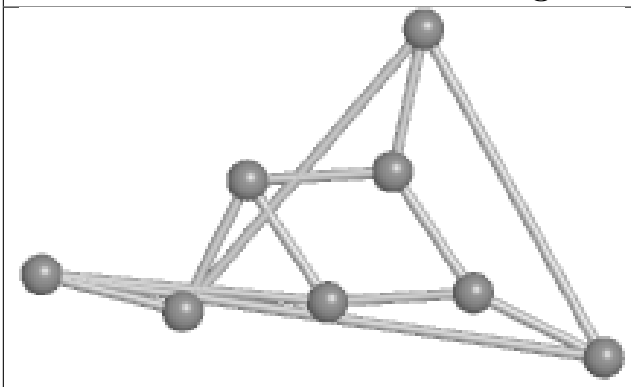


Torsions



Rings

Ligand SF4 E 604



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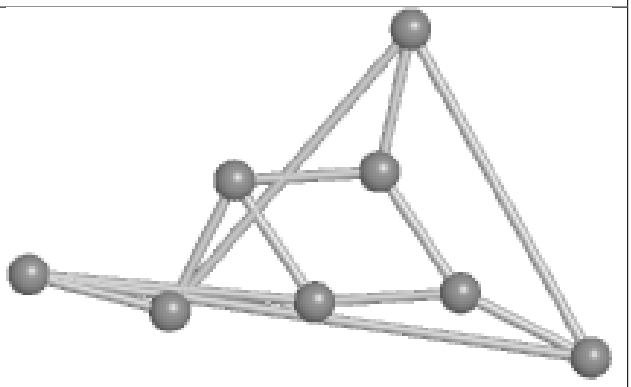
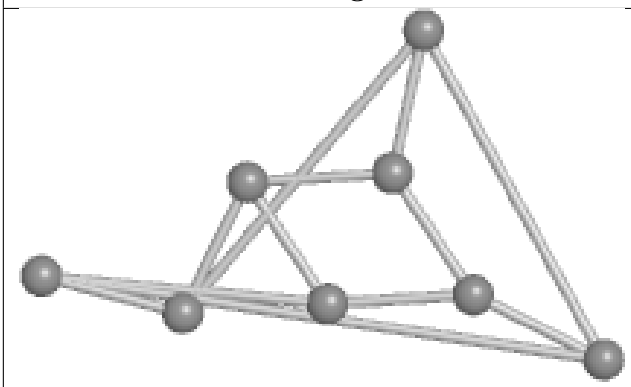
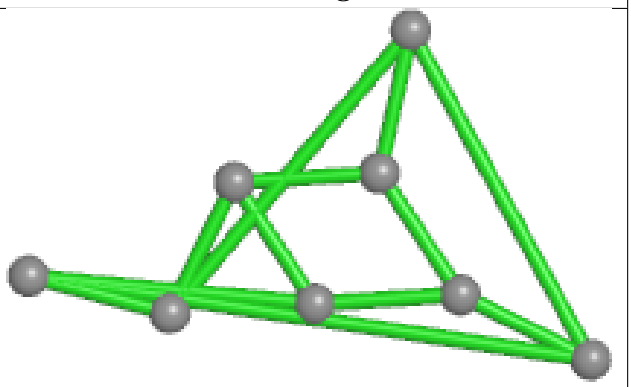


Bond angles

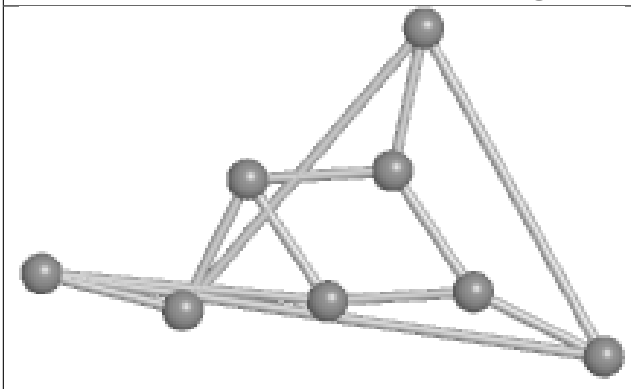


Torsions

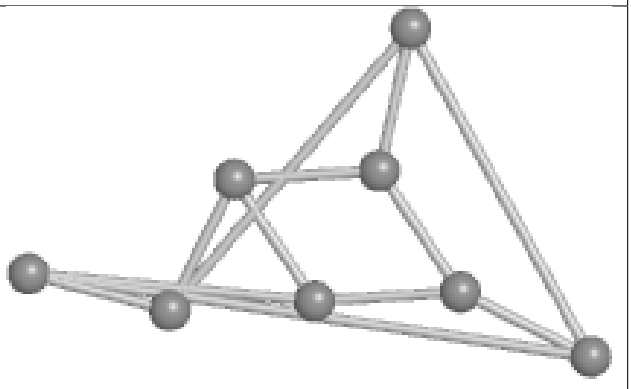


Rings

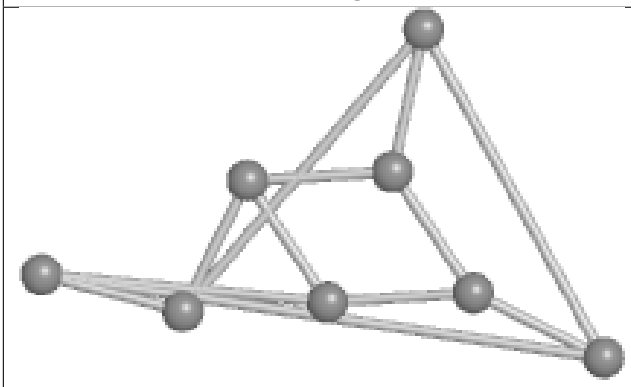
Ligand SF4 K 605



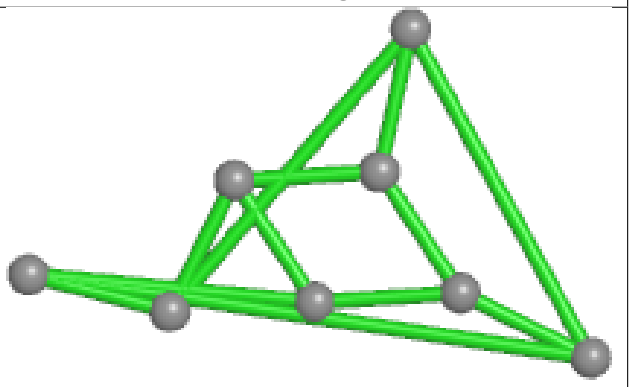
Bond lengths



Bond angles

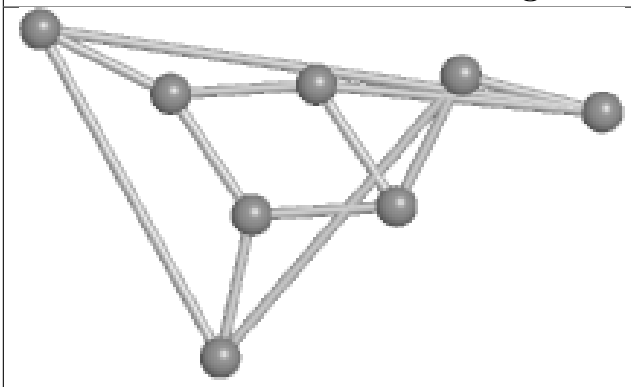


Torsions



Rings

Ligand SF4 D 1204



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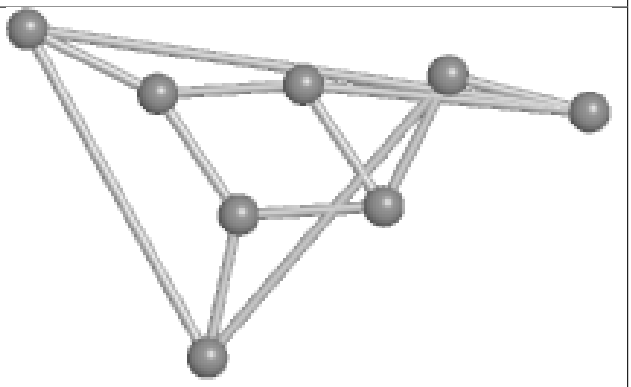
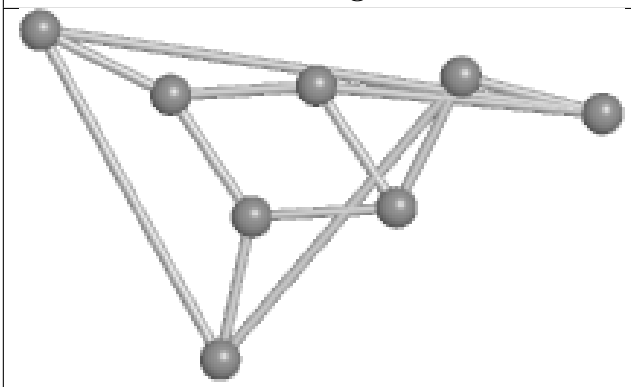
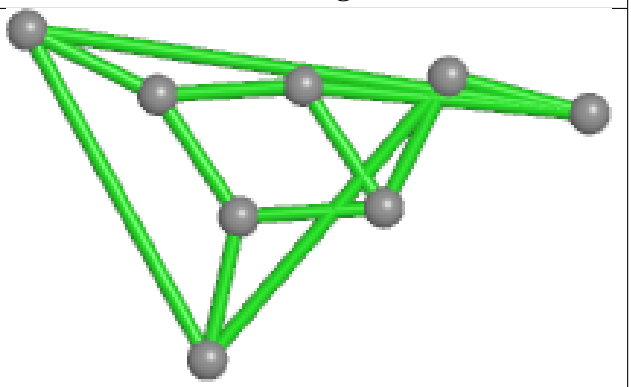


Bond angles

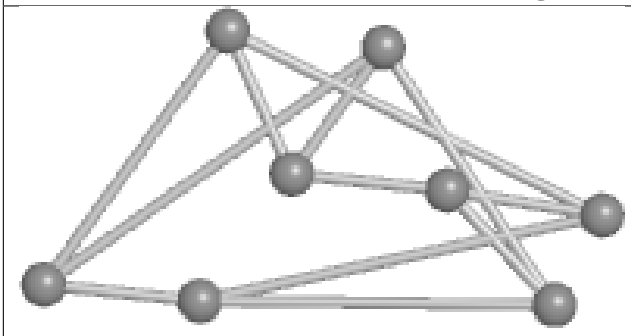


Torsions

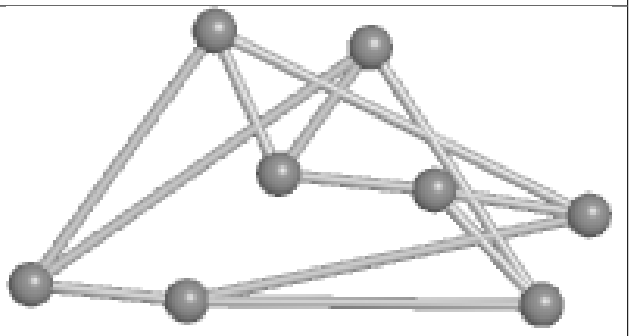


Rings

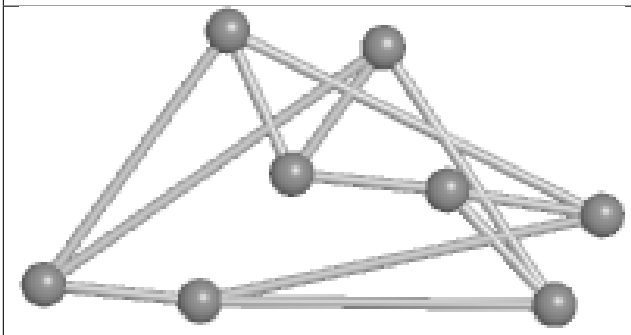
Ligand SF4 E 602



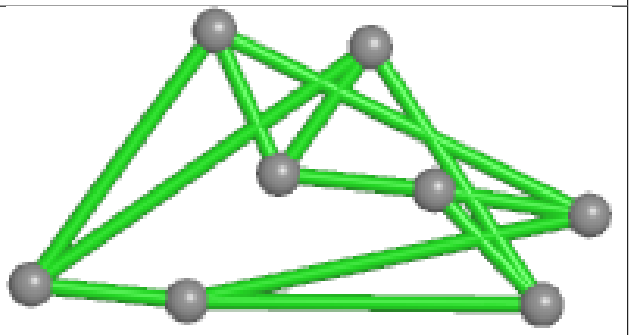
Bond lengths



Bond angles

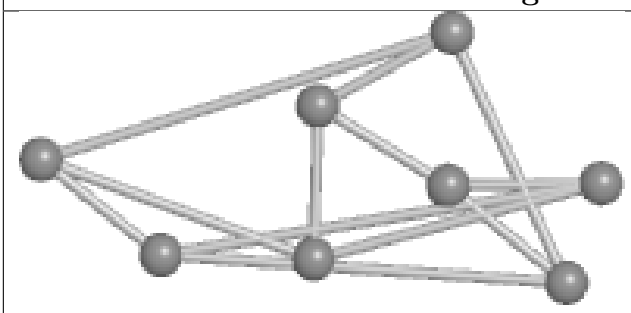


Torsions

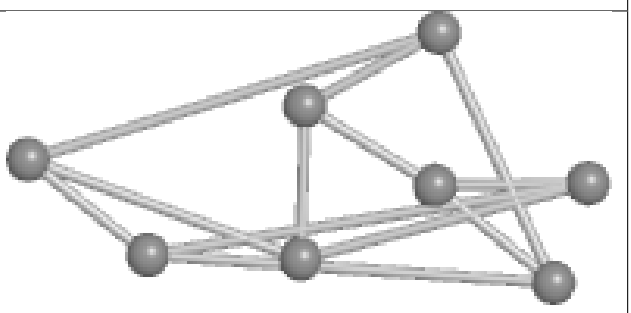


Rings

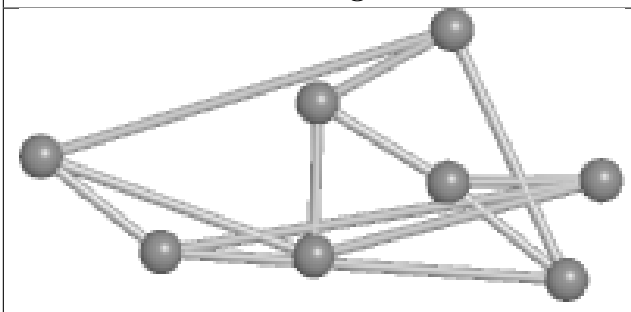
Ligand SF4 A 1206



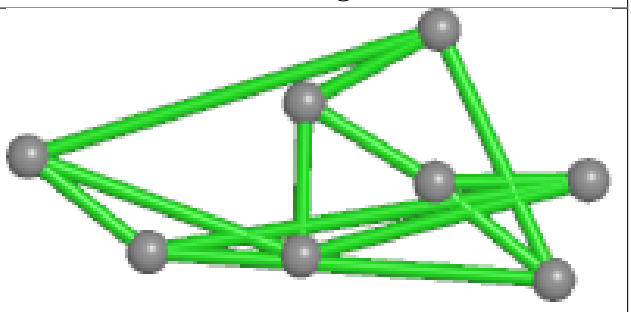
Bond lengths



Bond angles

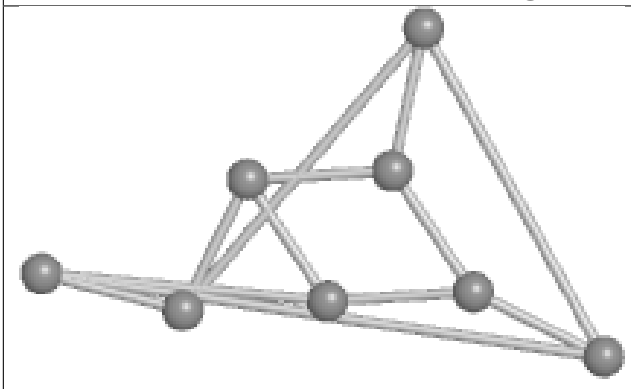


Torsions

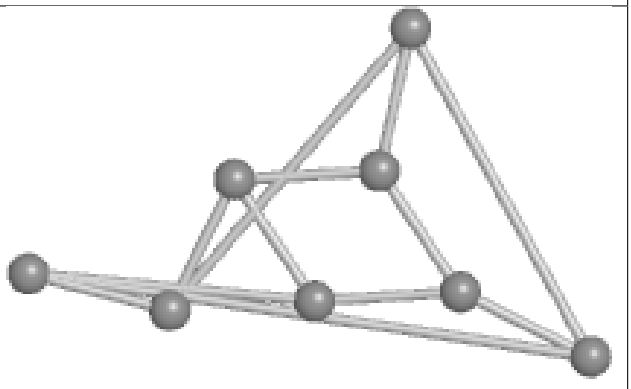


Rings

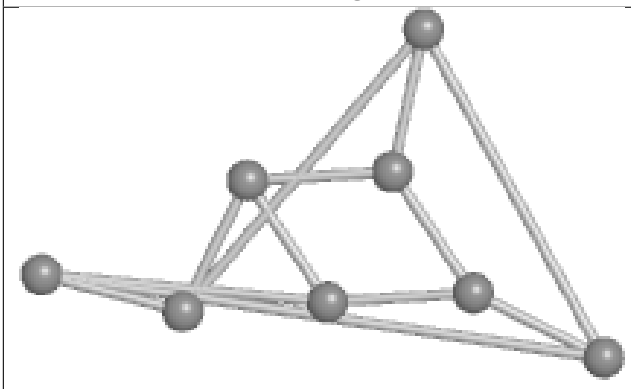
Ligand SF4 A 1203



Bond lengths



Bond angles



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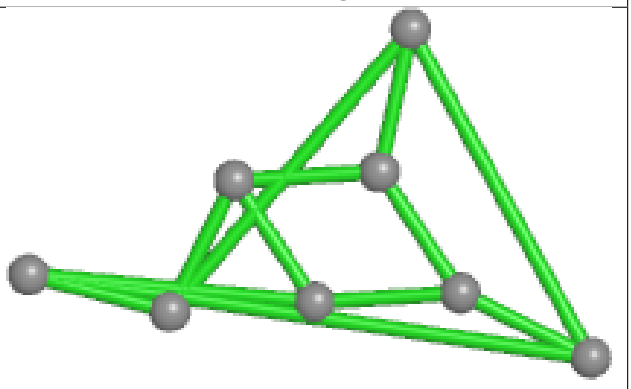
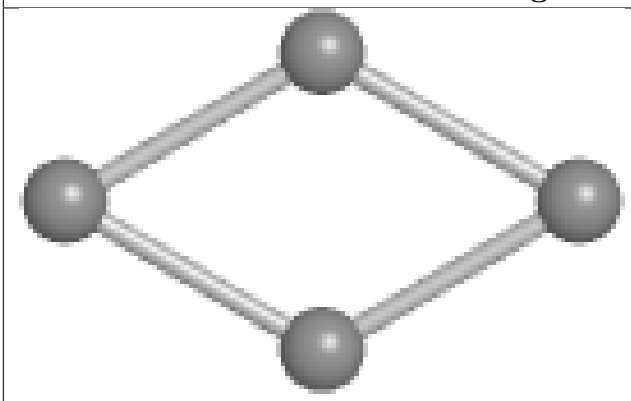


Rings

Ligand FES F 201



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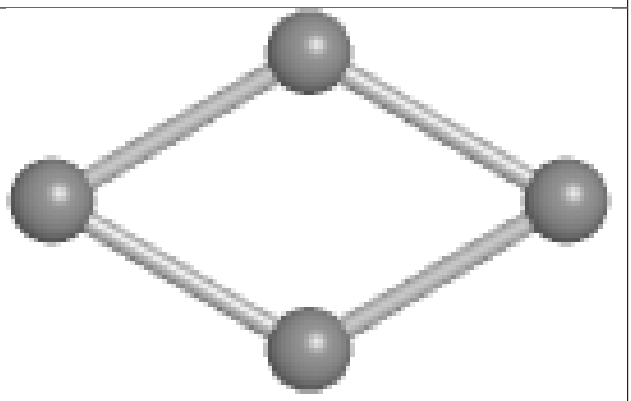
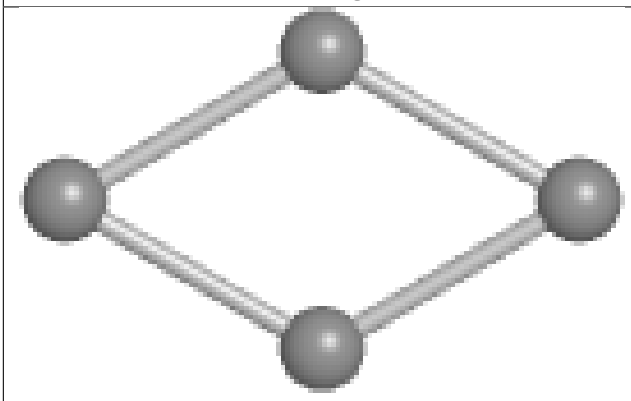


Bond angles



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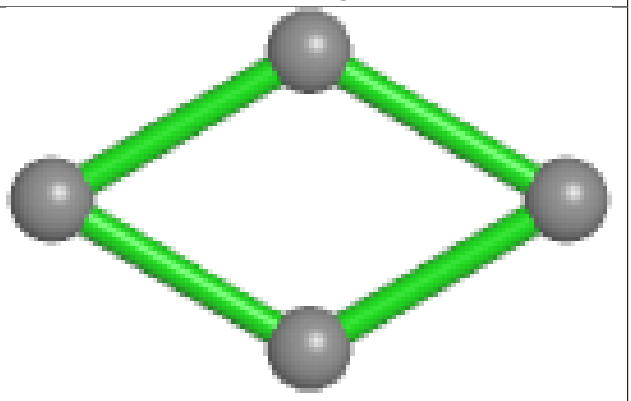
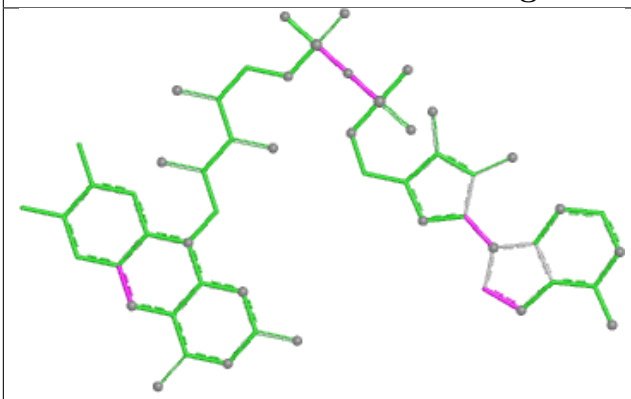


Rings

Ligand FAD J 1208



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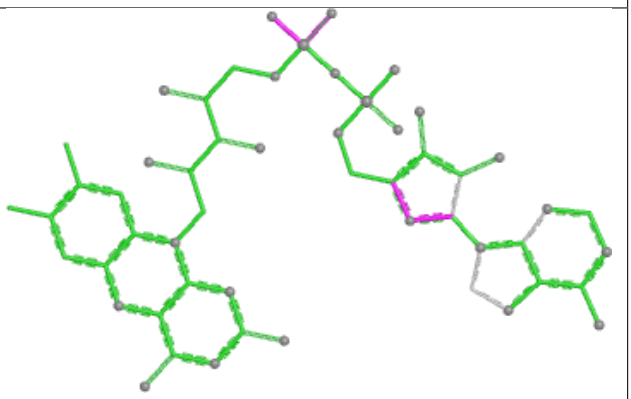

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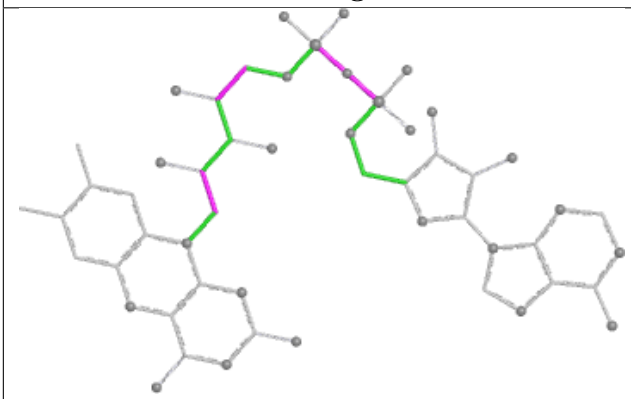

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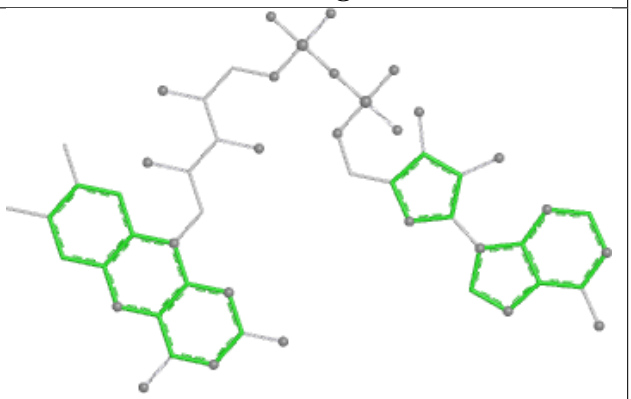
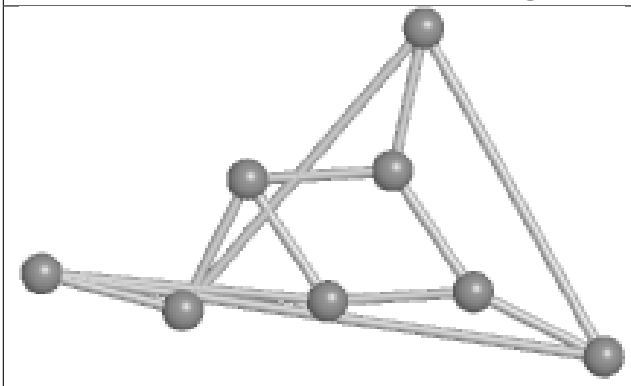


Rings

Ligand SF4 D 1206



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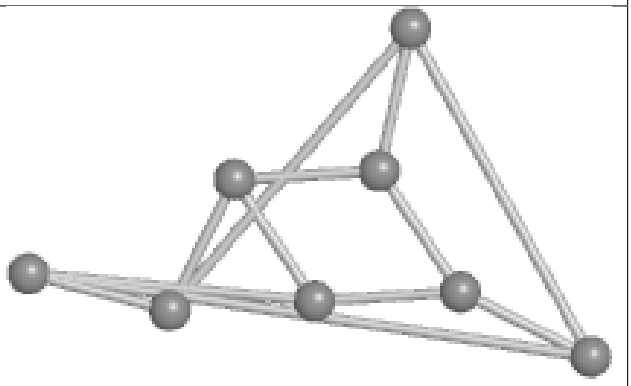
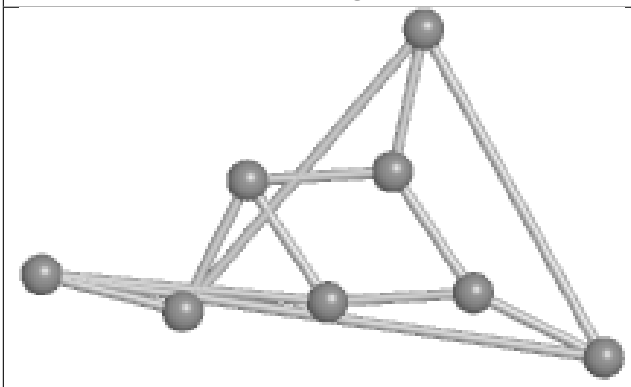


Bond angles



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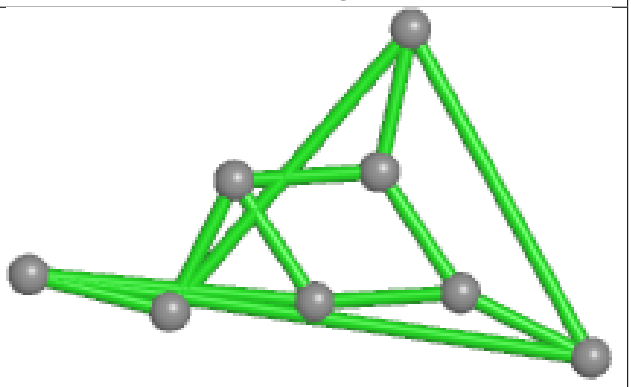
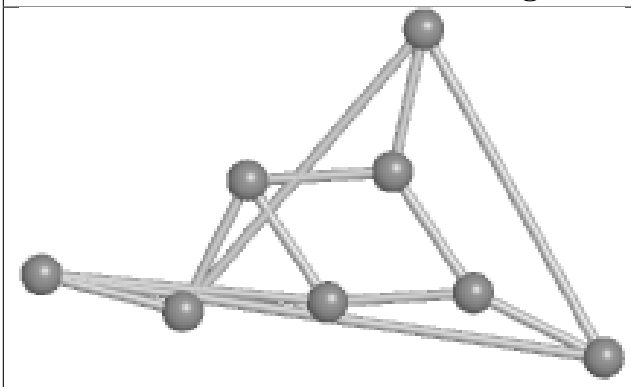


Rings

Ligand SF4 G 1204



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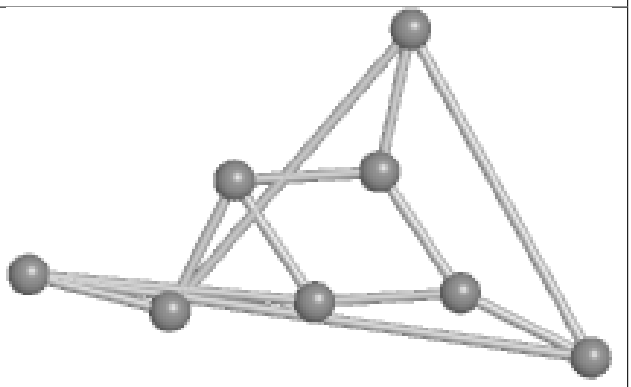

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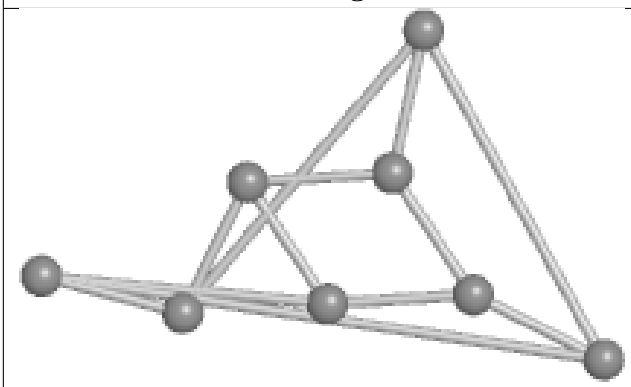

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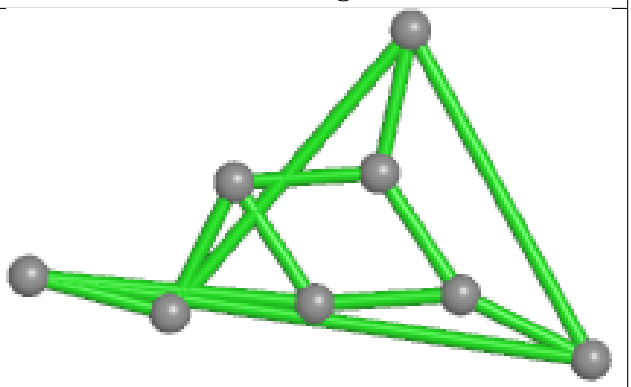
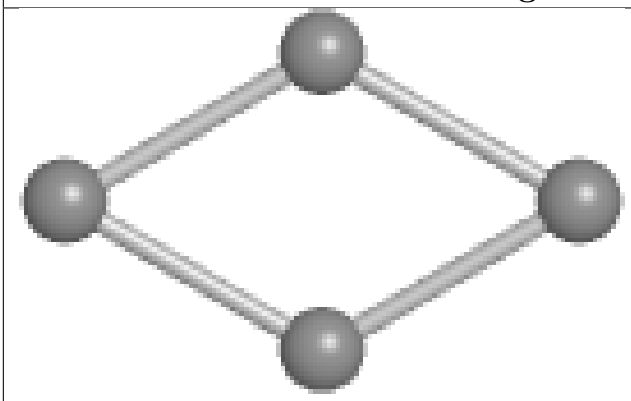


Rings

Ligand FES D 1201



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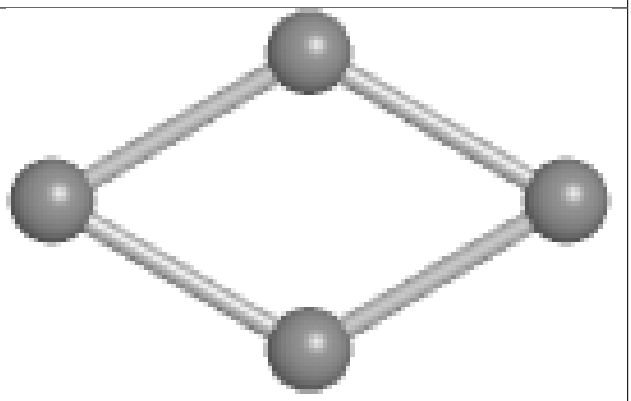
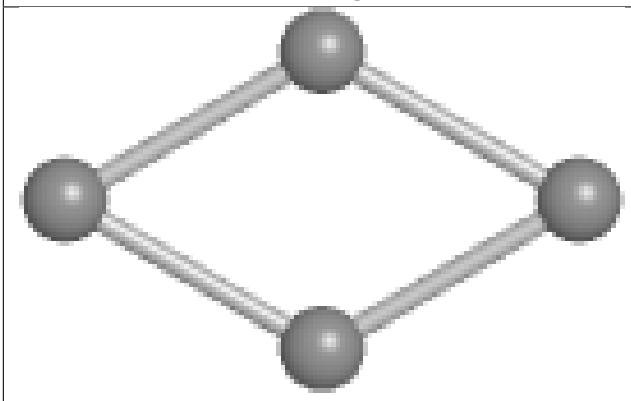


Bond angles



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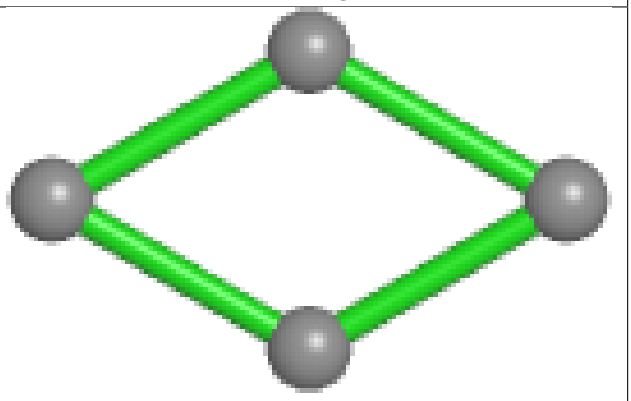
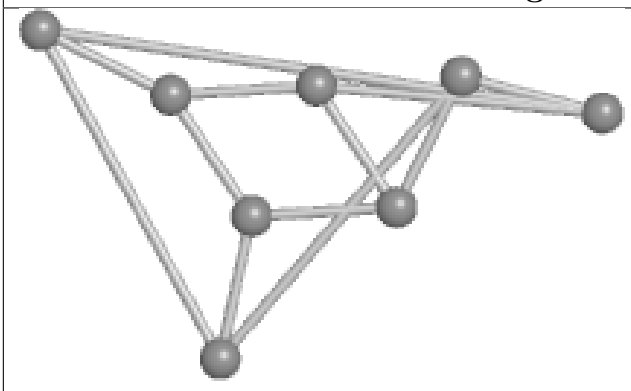


Rings

Ligand SF4 J 1204



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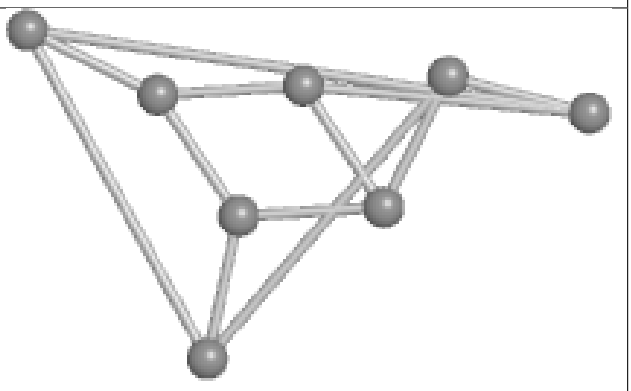
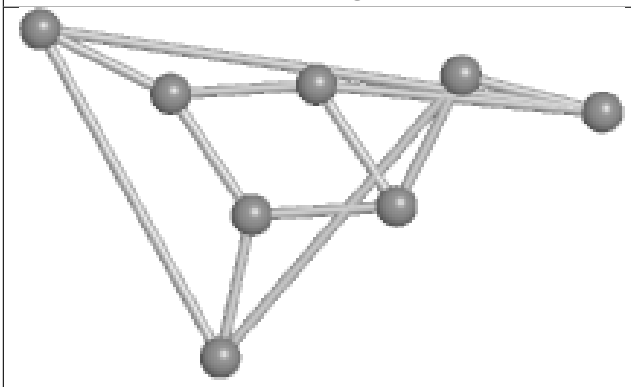


Bond angles



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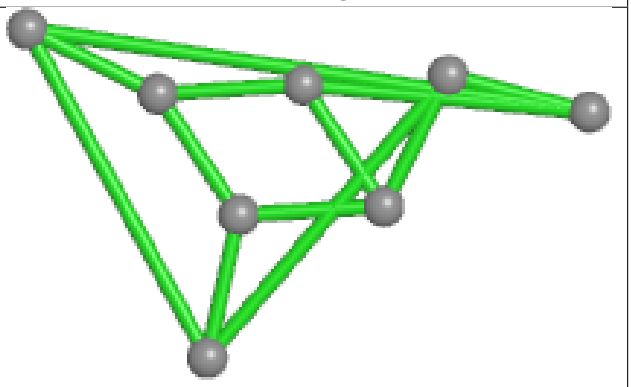
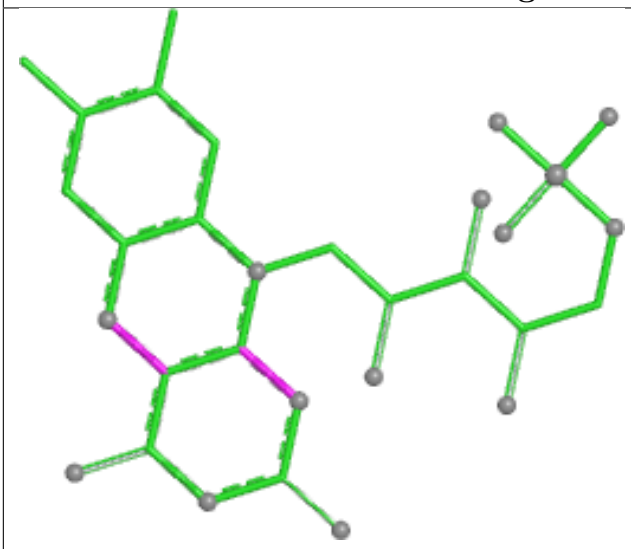


Rings

Ligand FMN K 601



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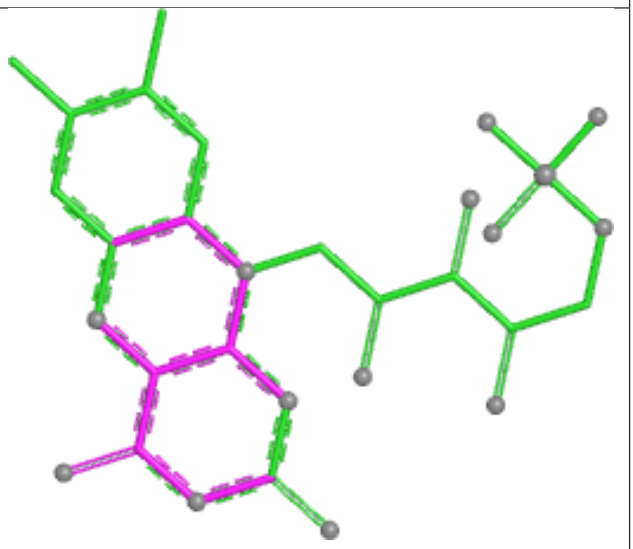
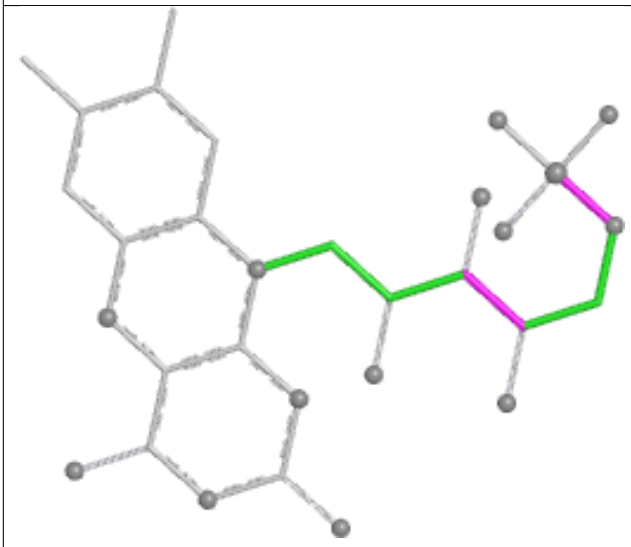


Bond angles



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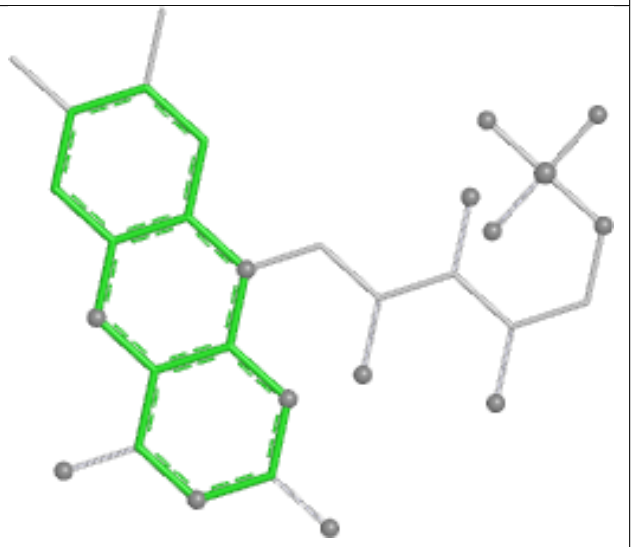
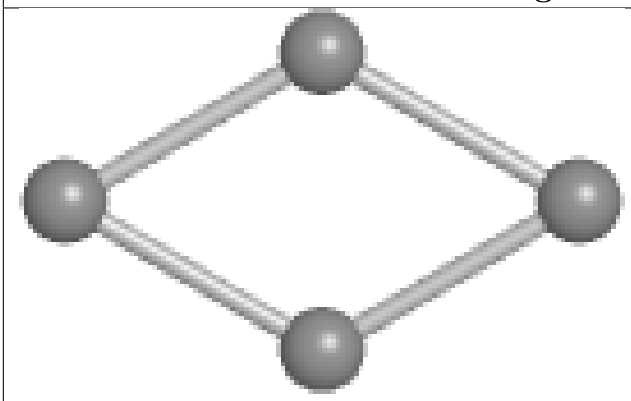


Rings

Ligand FES I 201



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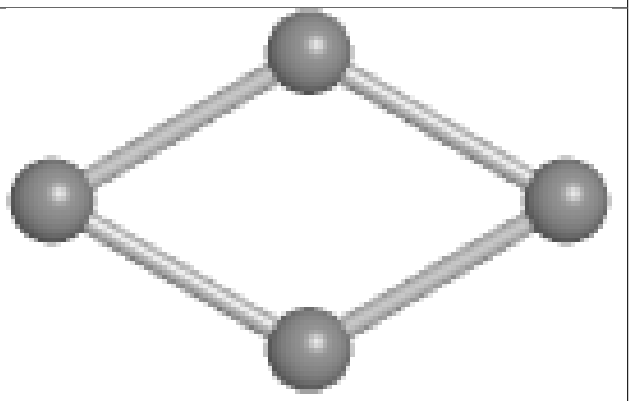
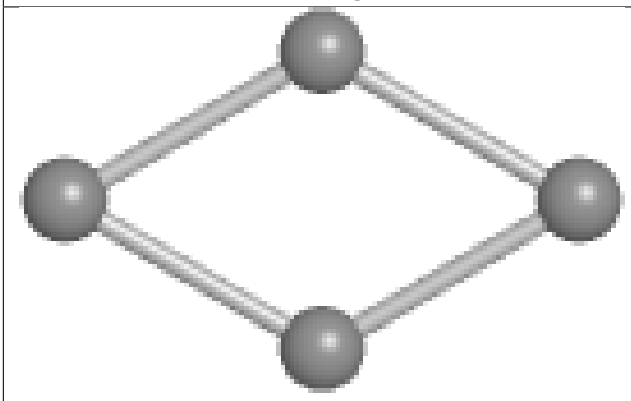


Bond angles



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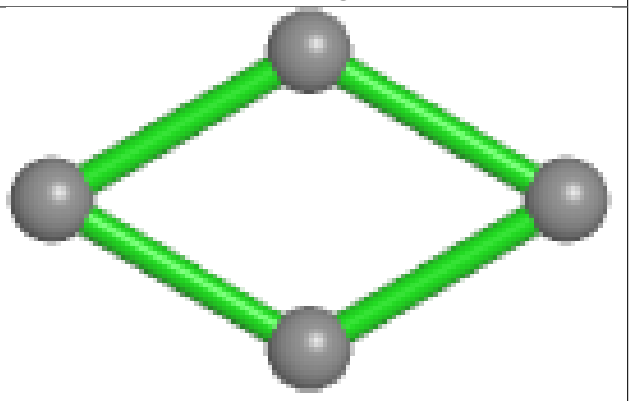
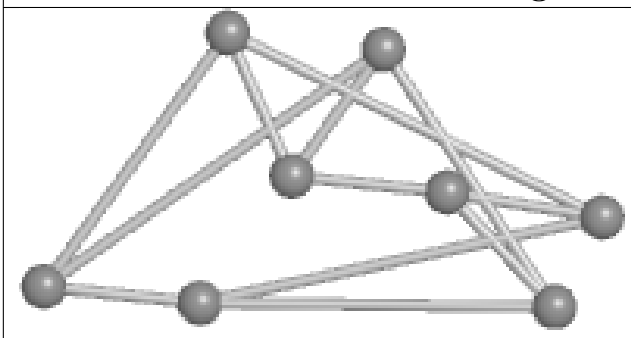


Rings

Ligand SF4 K 602



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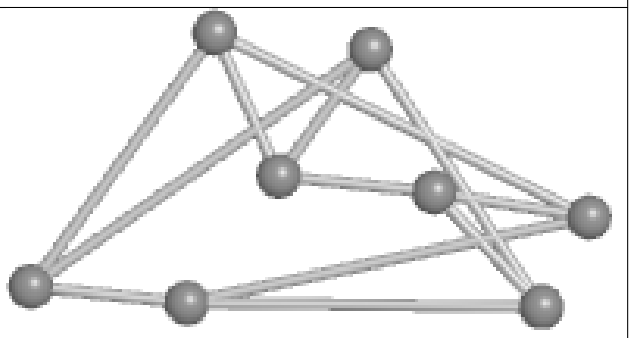
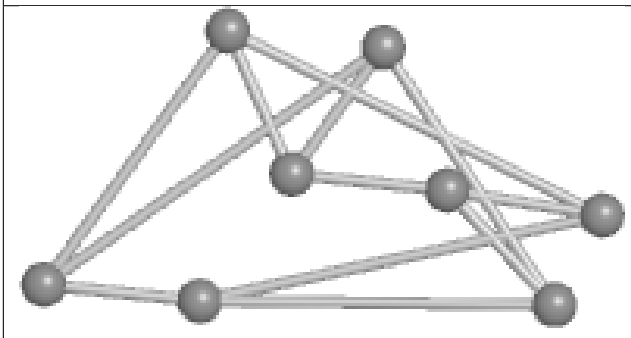
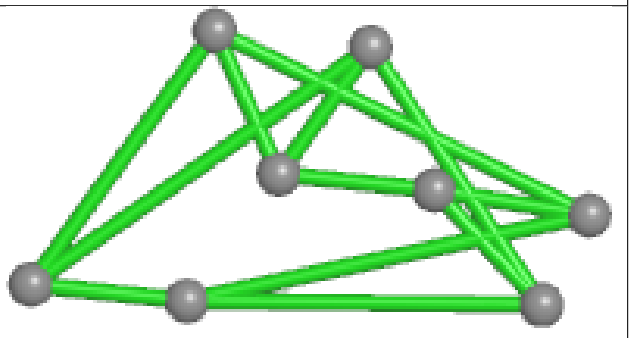


Bond angles

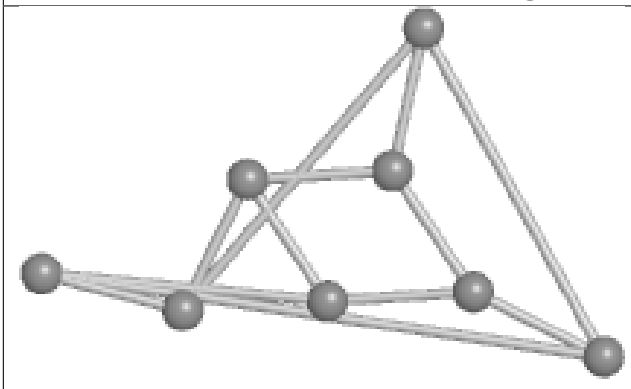


Torsions



Rings

Ligand SF4 G 1203



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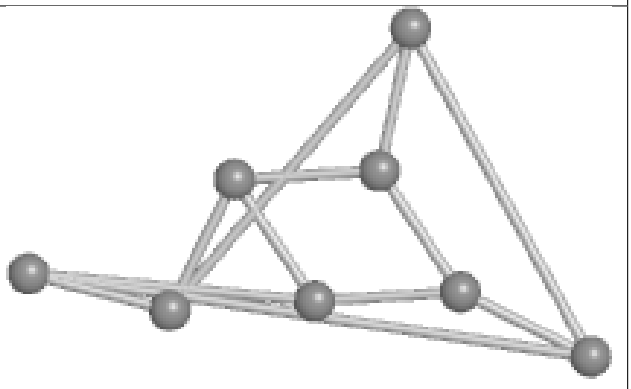
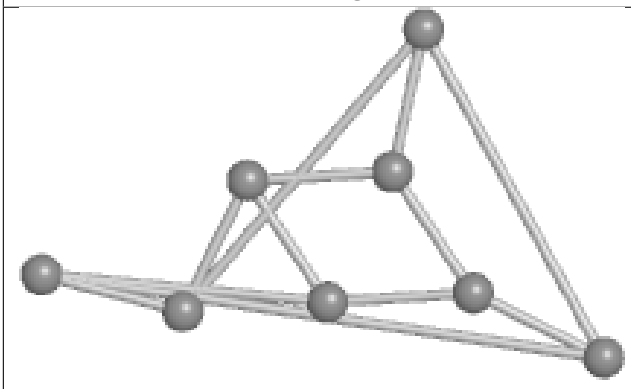


Bond angles



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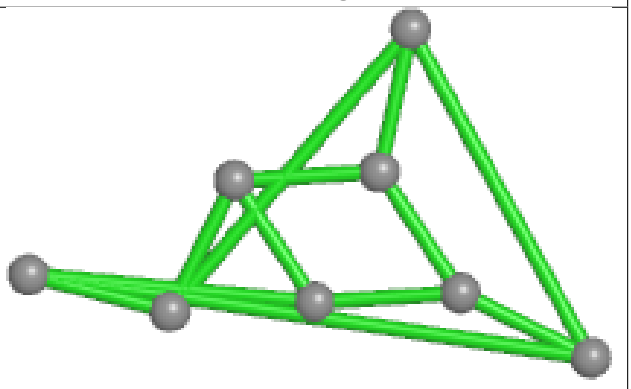
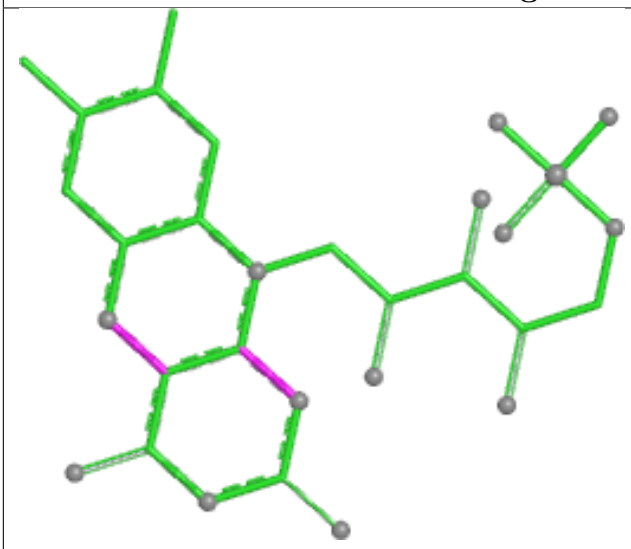


Rings

Ligand FMN E 601



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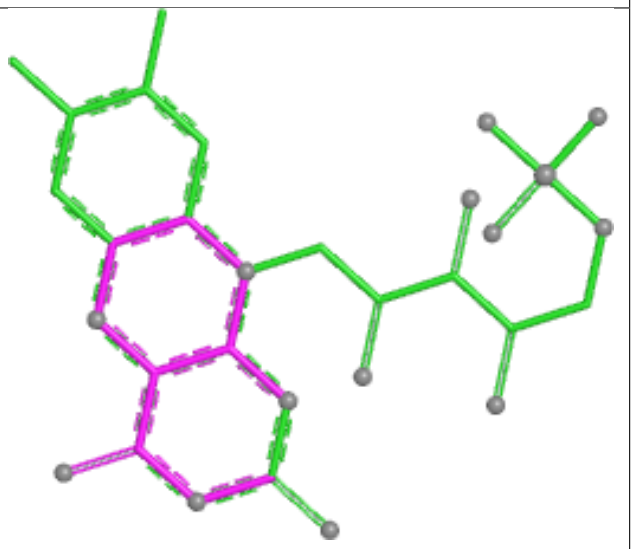
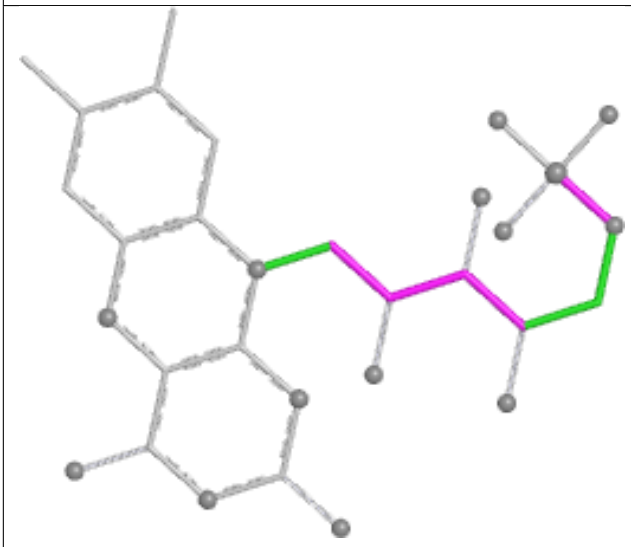
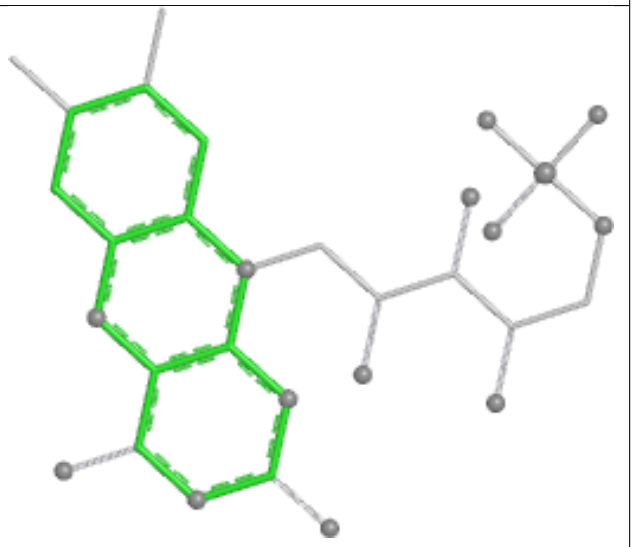


Bond angles

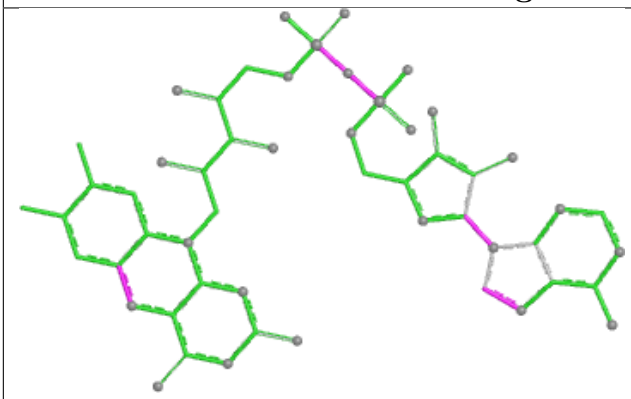


Torsions

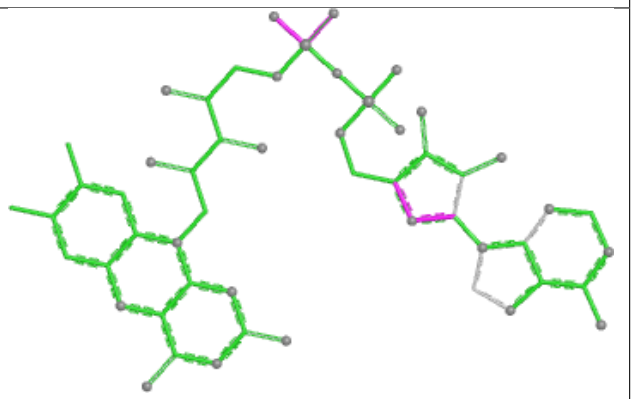


Rings

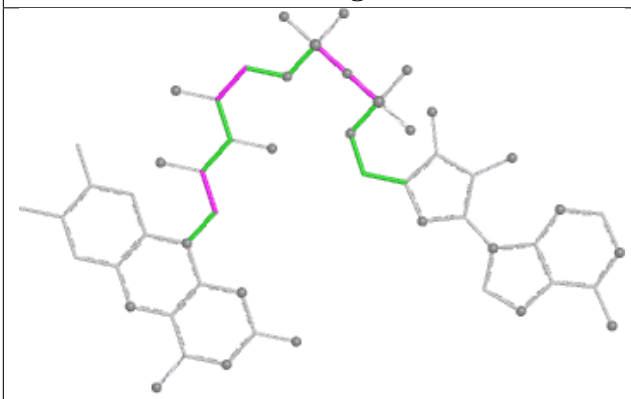
Ligand FAD A 1208



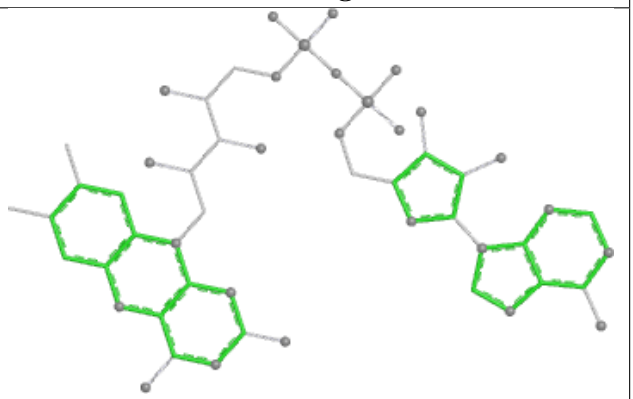
Bond lengths



Bond angles

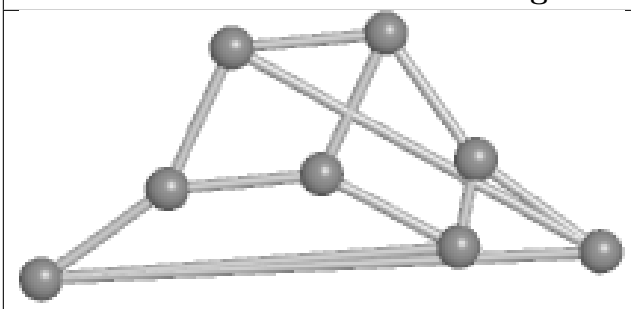


Torsions



Rings

Ligand SF4 H 602



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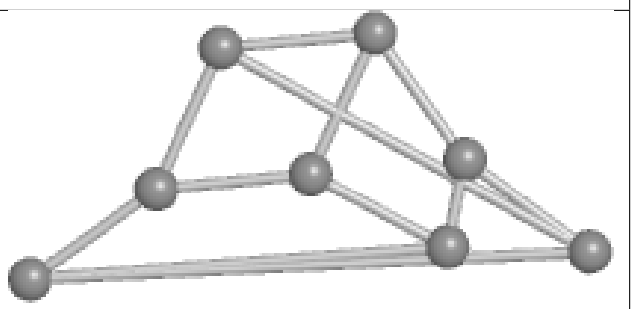
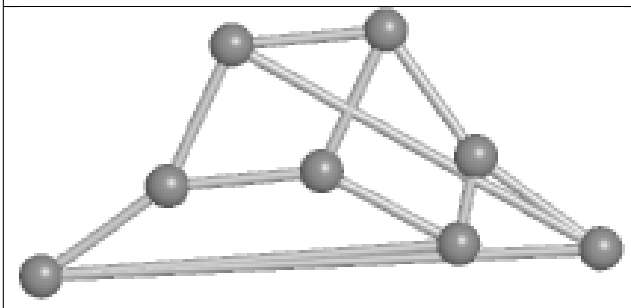
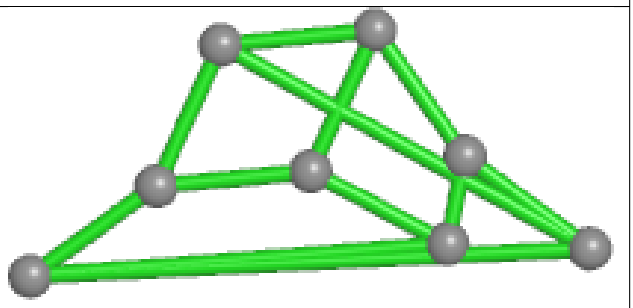


Bond angles

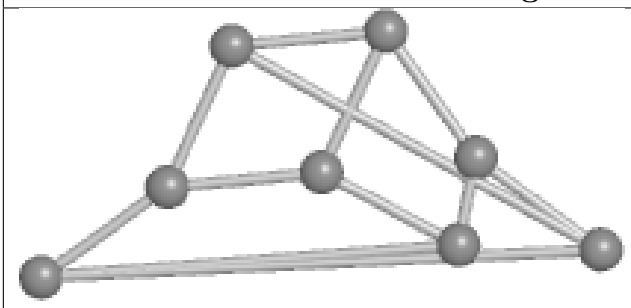


Torsions

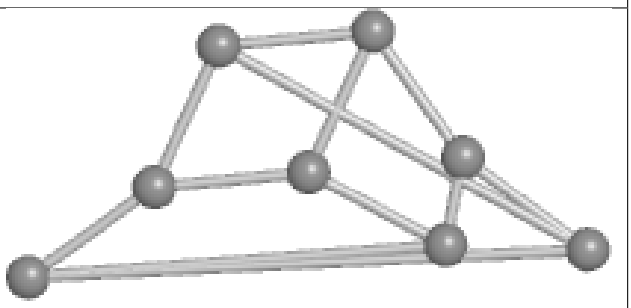


Rings

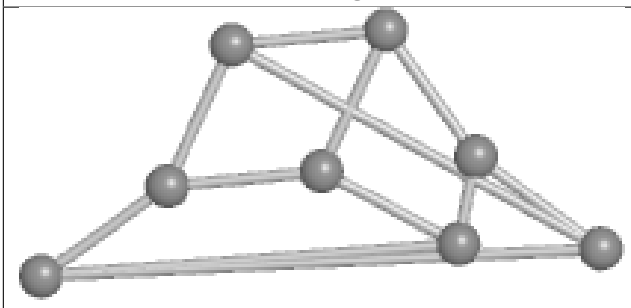
Ligand SF4 G 1207



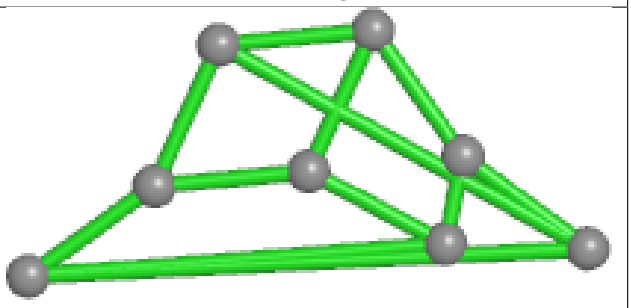
Bond lengths



Bond angles

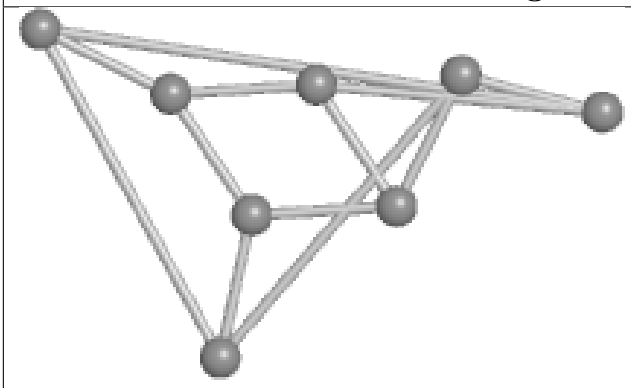


Torsions



Rings

Ligand SF4 J 1205



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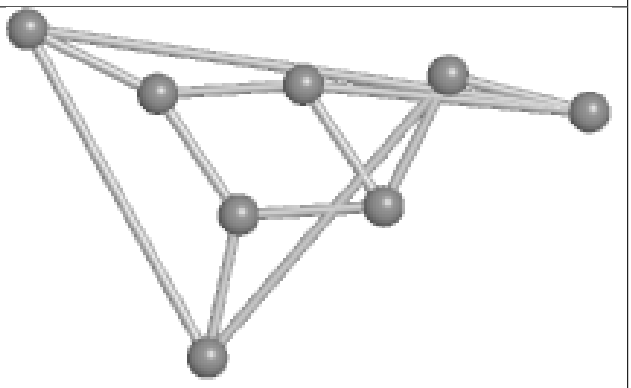
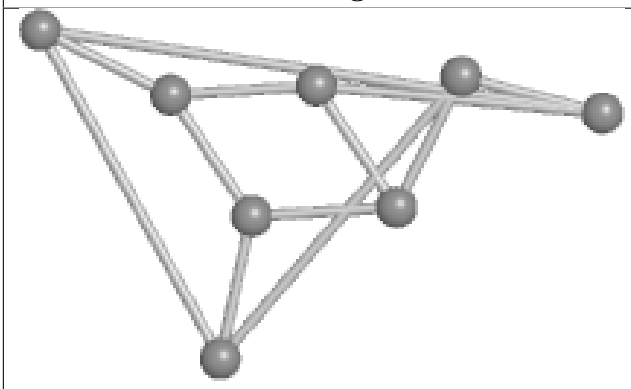


Bond angles



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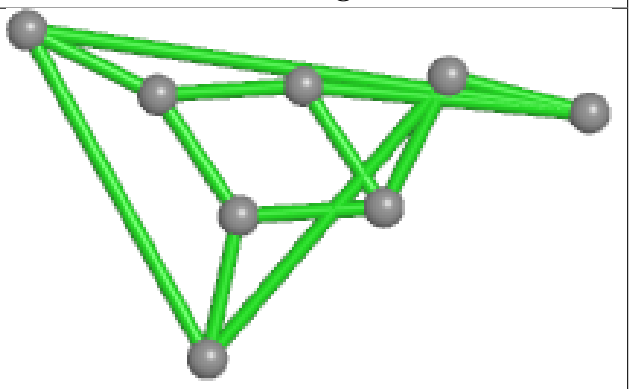
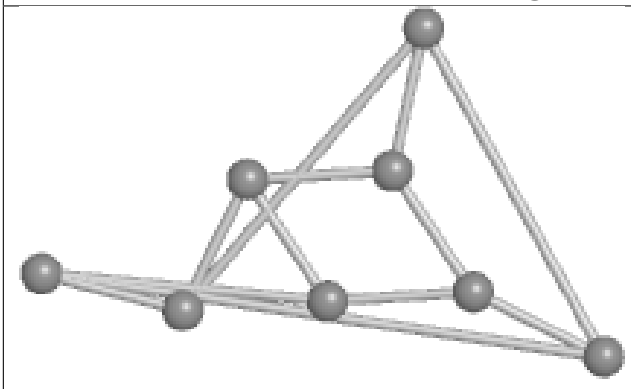
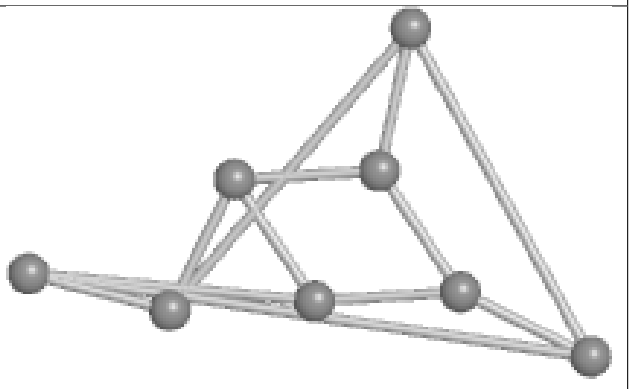


Rings

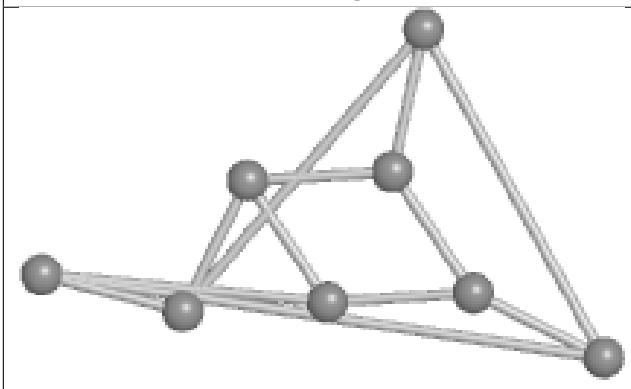
Ligand SF4 J 1206



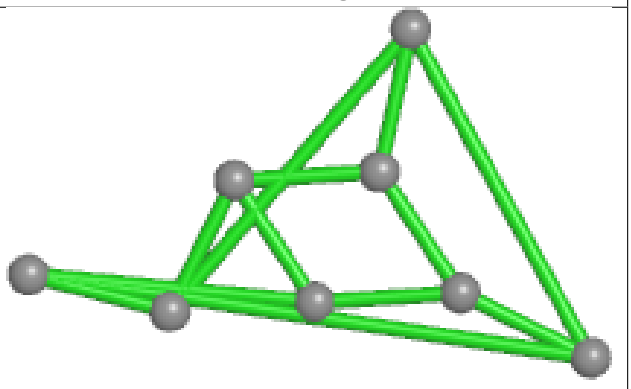
Bond lengths



Bond angles

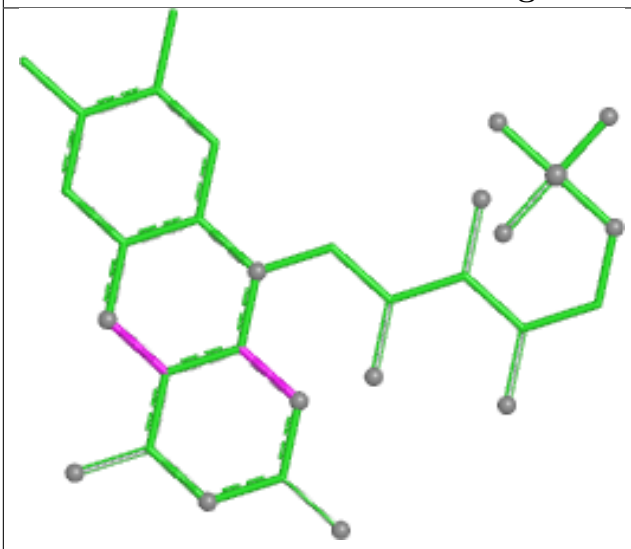


Torsions



Rings

Ligand FMN H 601



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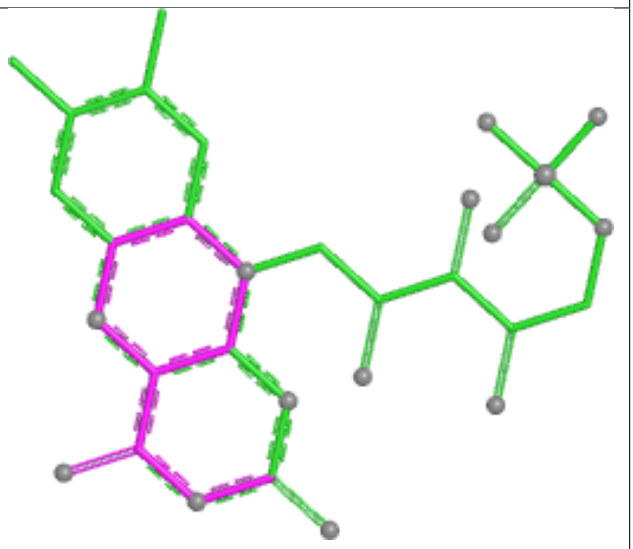
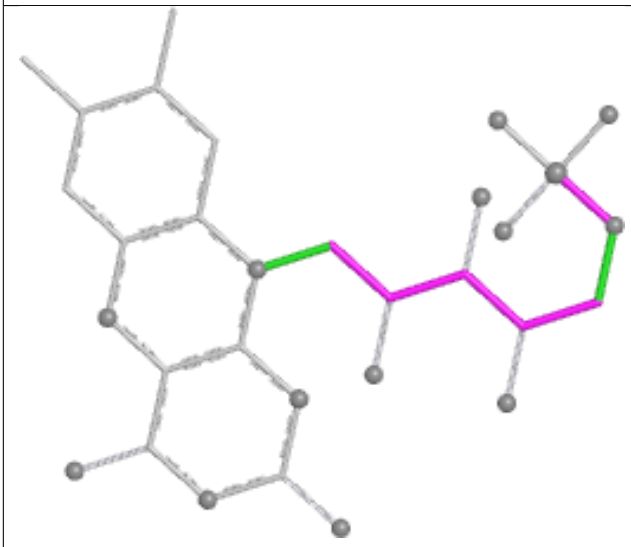


Bond angles



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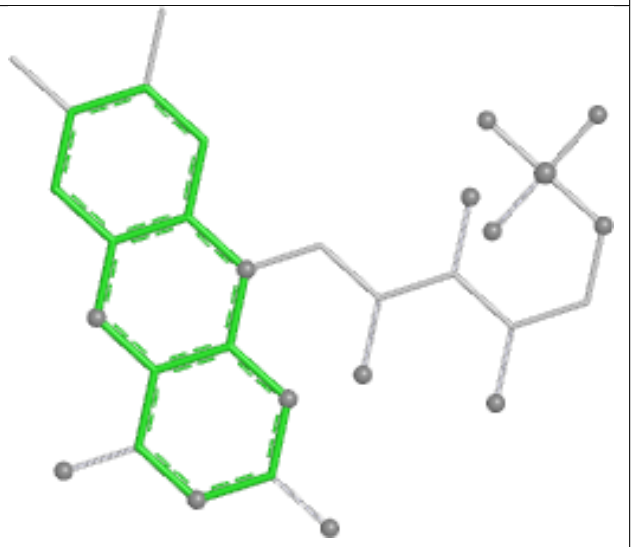
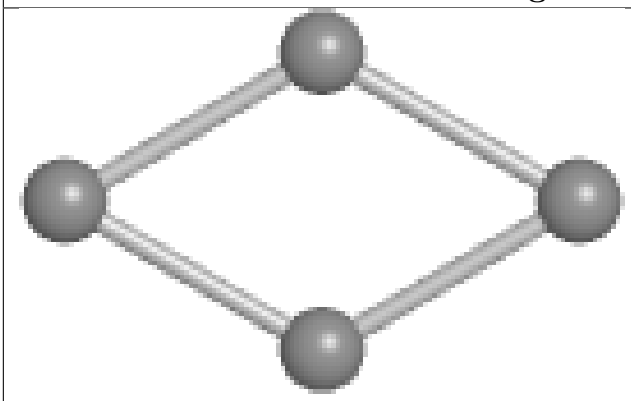


Rings

Ligand FES C 201



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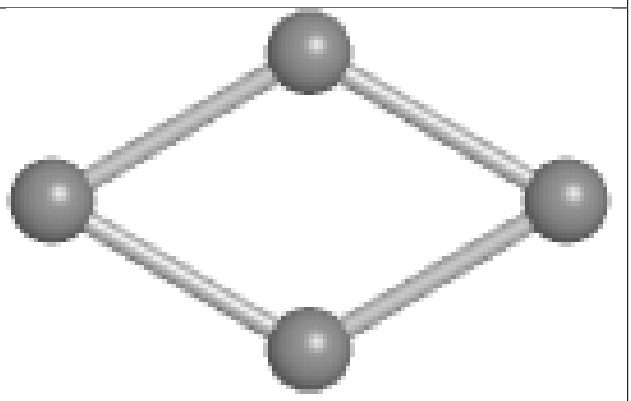
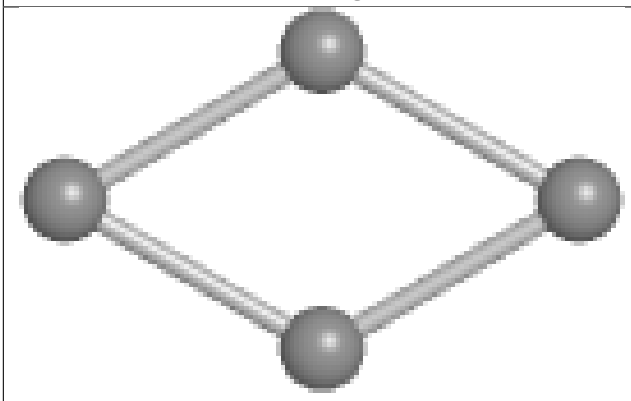


Bond angles



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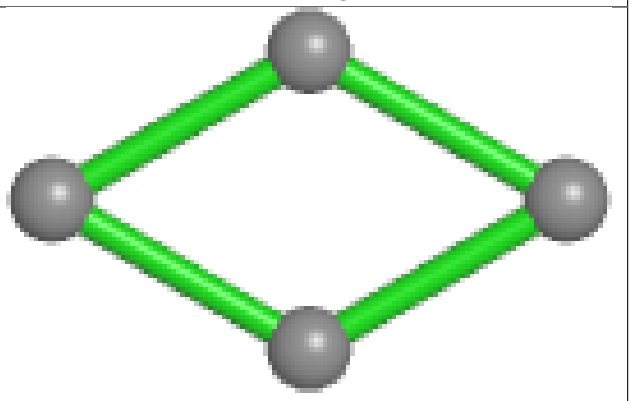
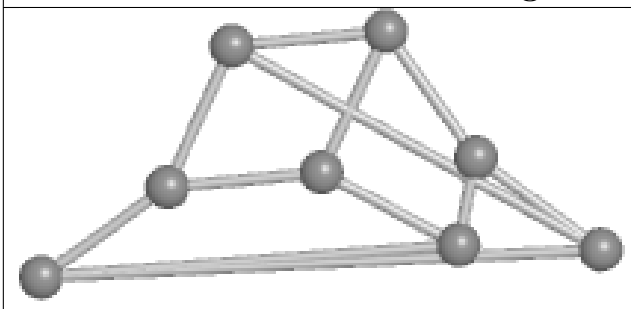


Rings

Ligand SF4 G 1205



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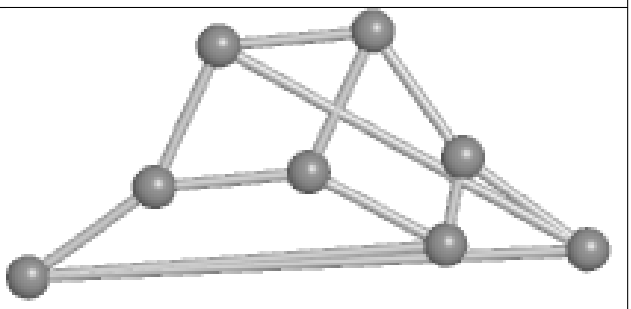
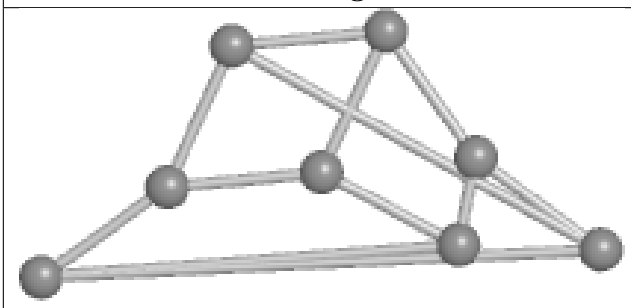


Bond angles



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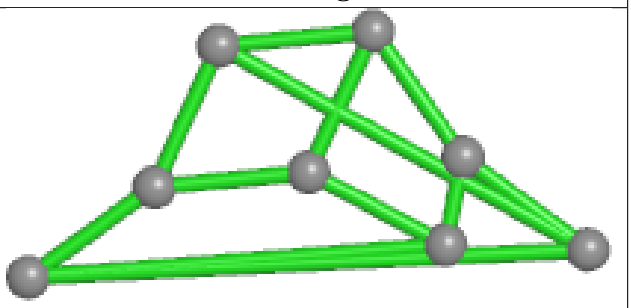
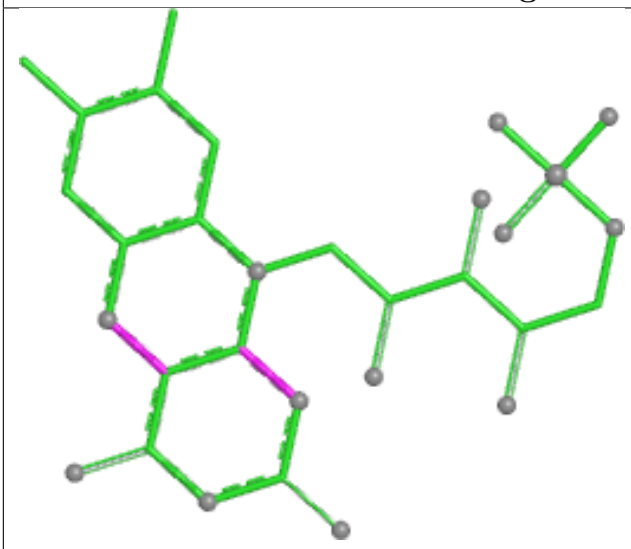


Rings

Ligand FMN B 601



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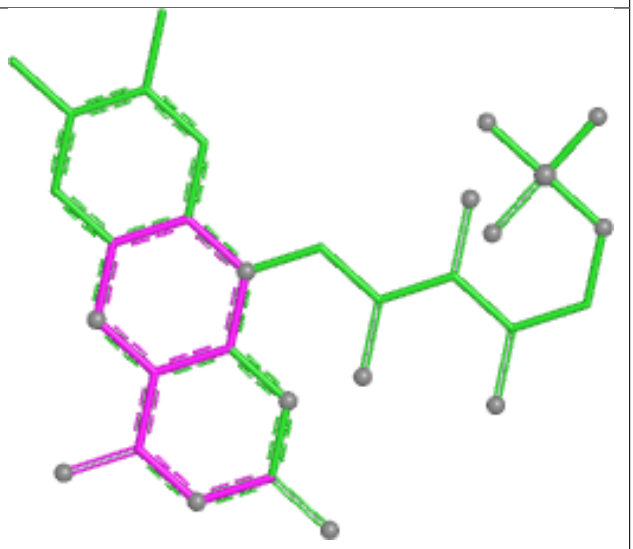
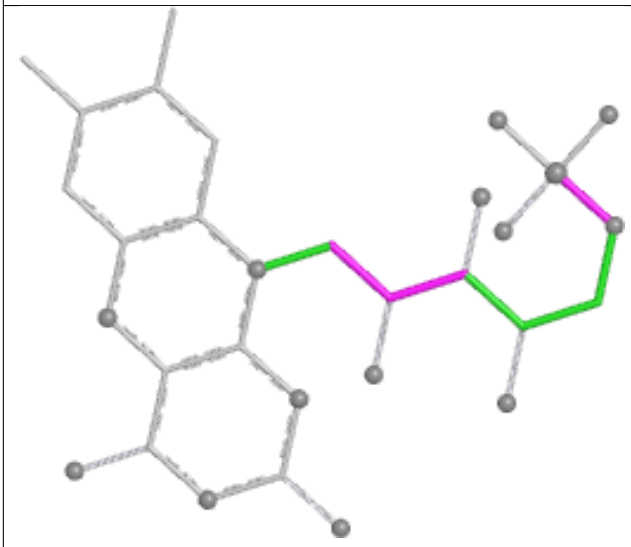


Bond angles



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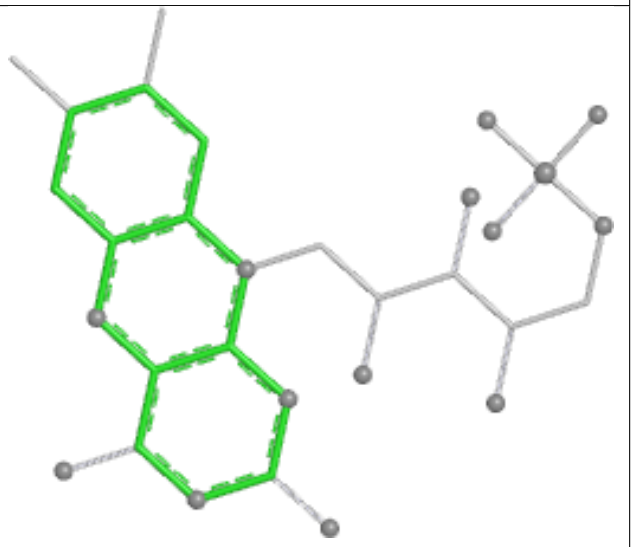
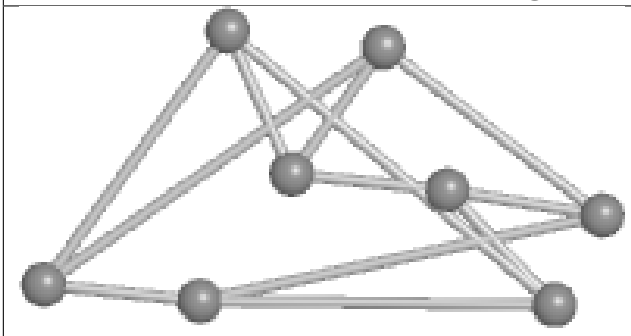


Rings

Ligand SF4 J 1202



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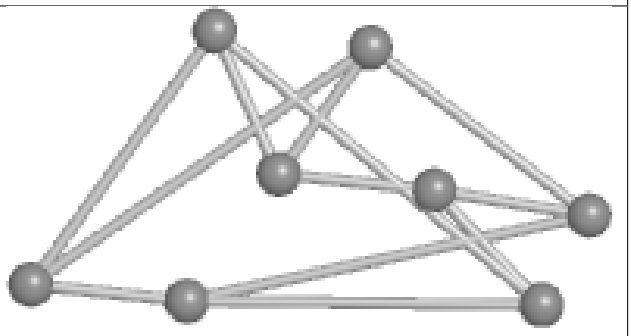
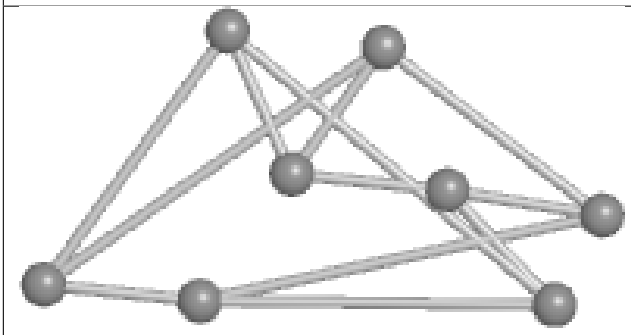
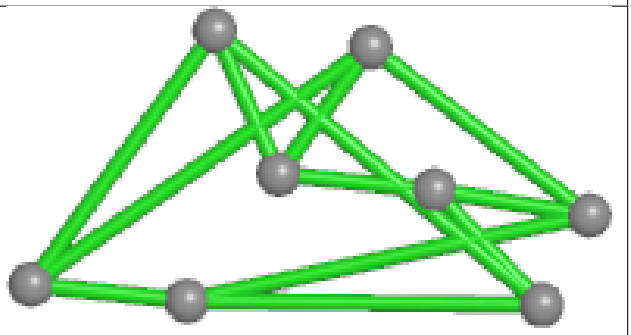


Bond angles

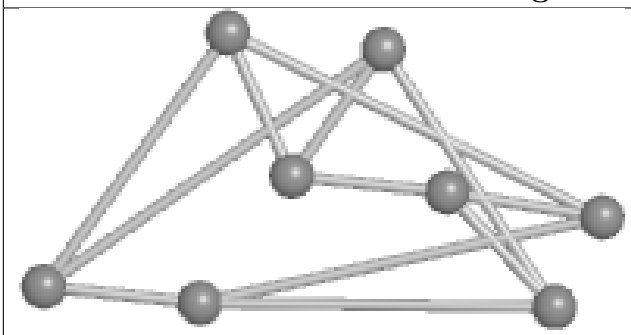


Torsions

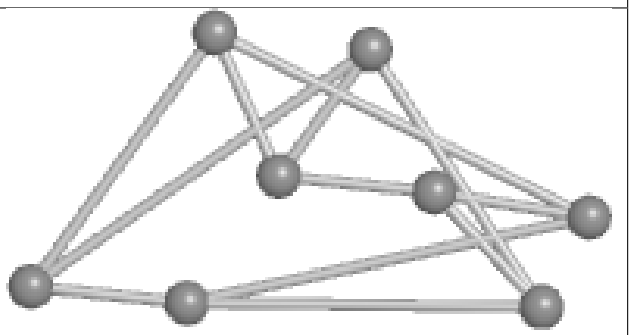


Rings

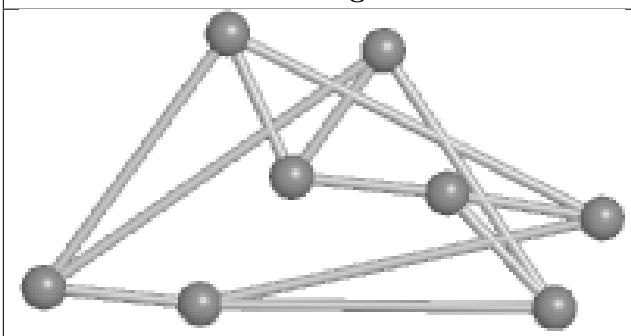
Ligand SF4 B 604



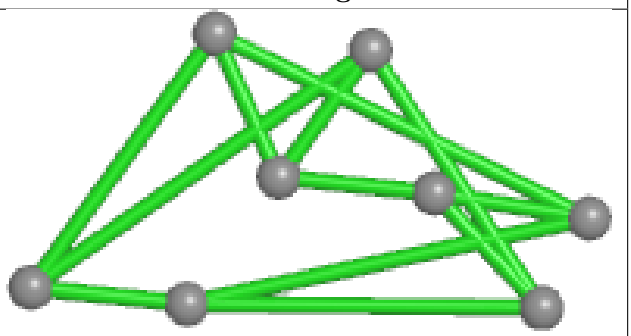
Bond lengths



Bond angles

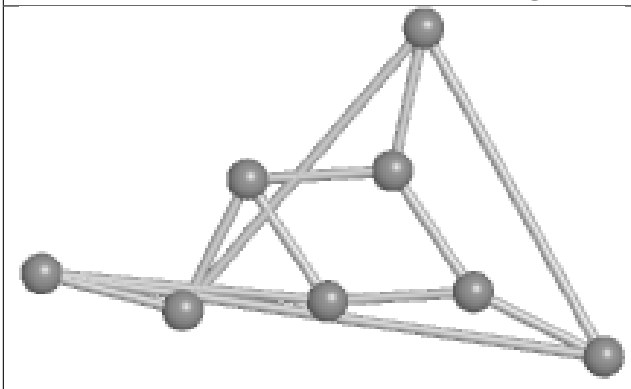


Torsions

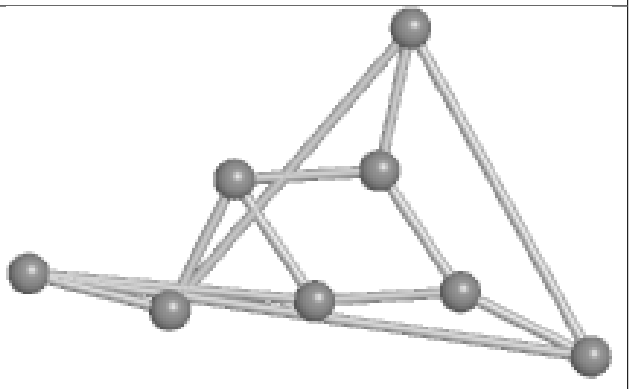


Rings

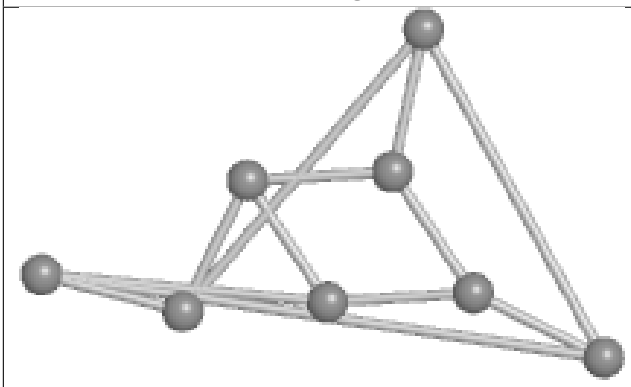
Ligand SF4 J 1207



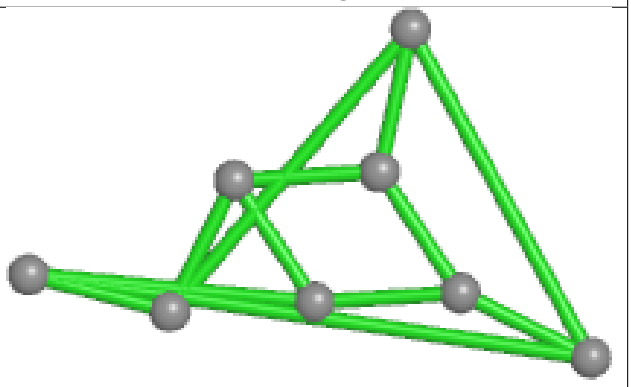
Bond lengths



Bond angles

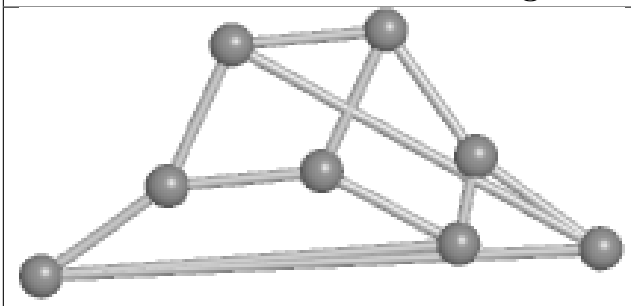


Torsions



Rings

Ligand SF4 A 1205



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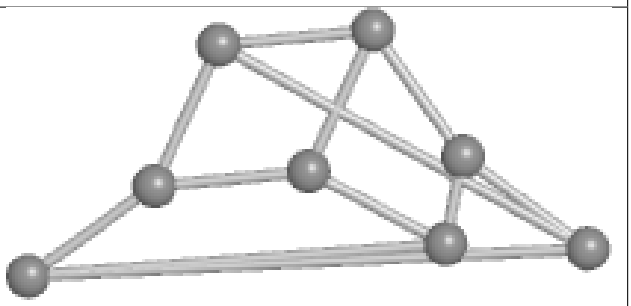
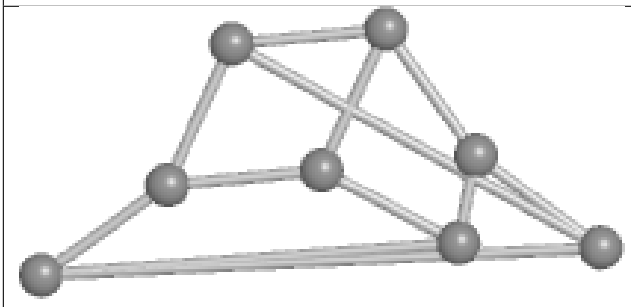
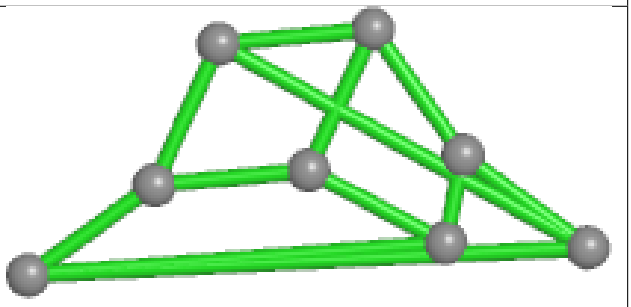


Bond angles

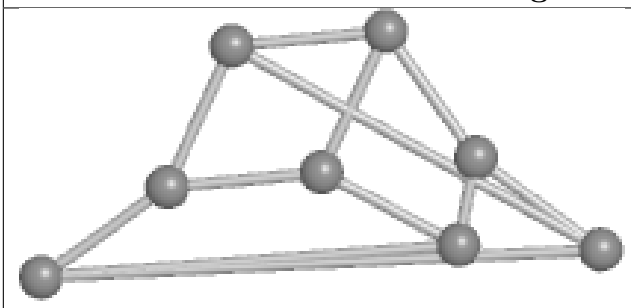


Torsions



Rings

Ligand SF4 H 605



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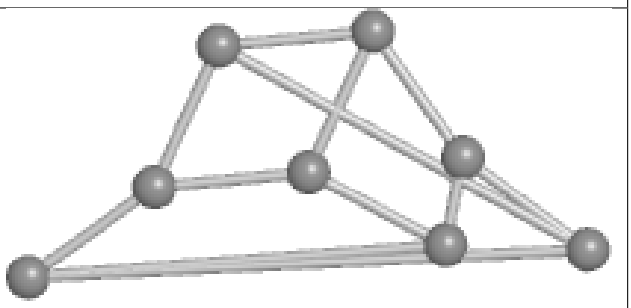
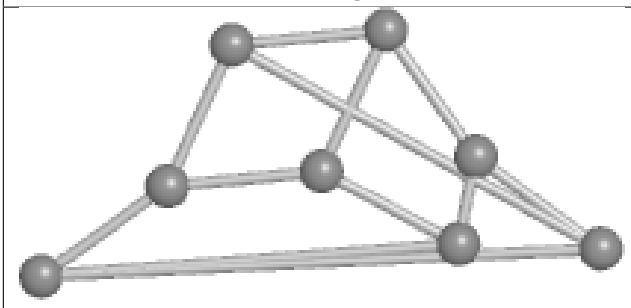
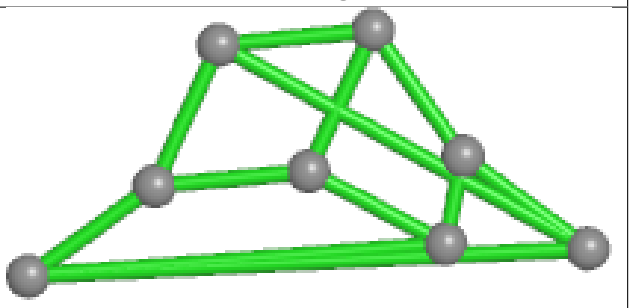


Bond angles

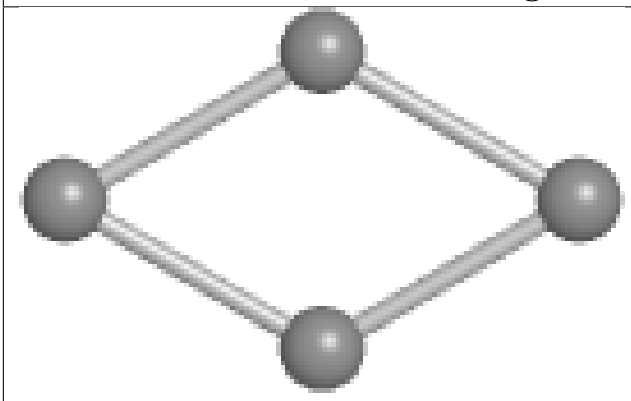


Torsions

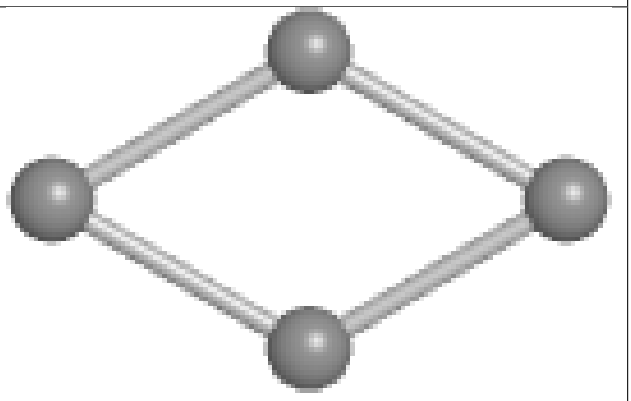


Rings

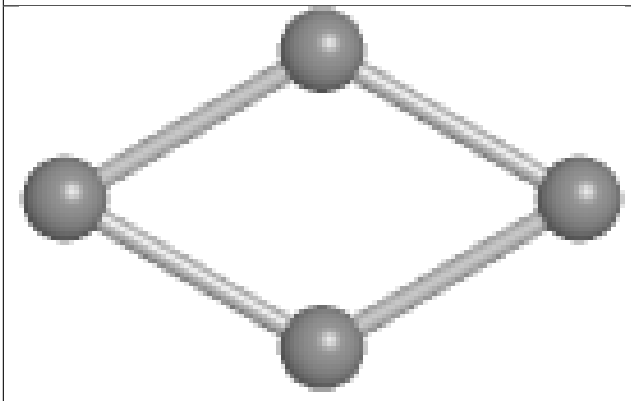
Ligand FES J 1201



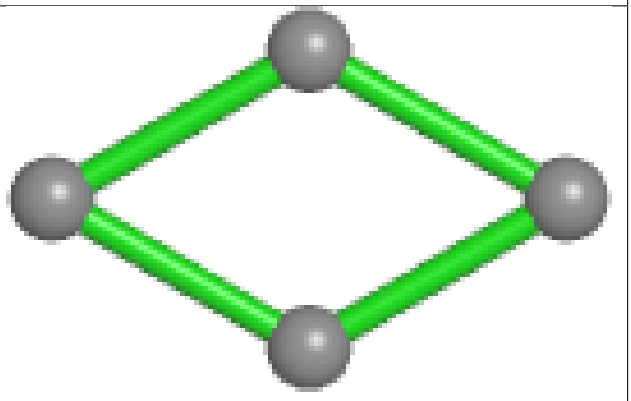
Bond lengths



Bond angles

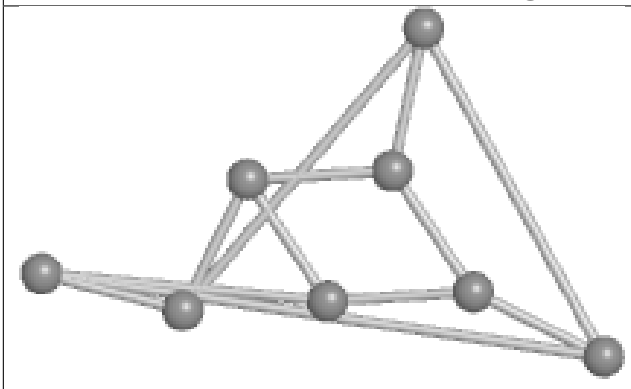


Torsions

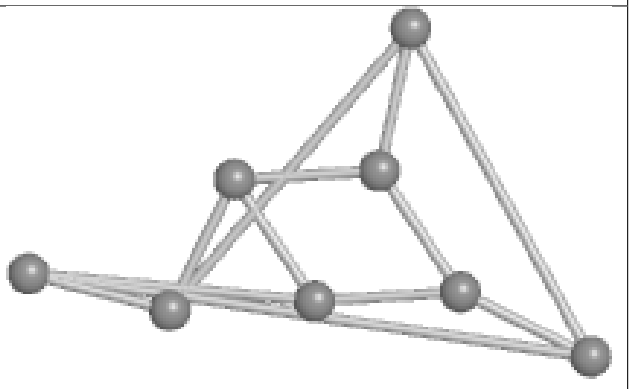


Rings

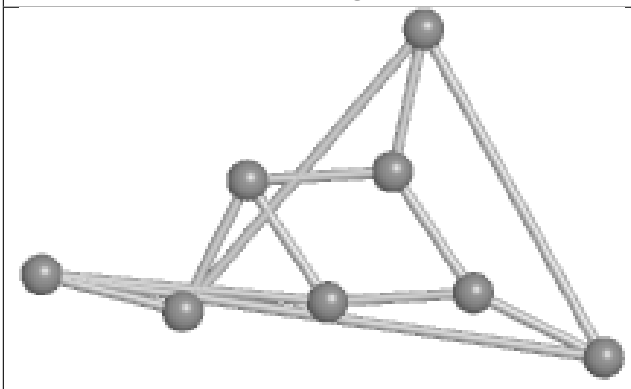
Ligand SF4 A 1202



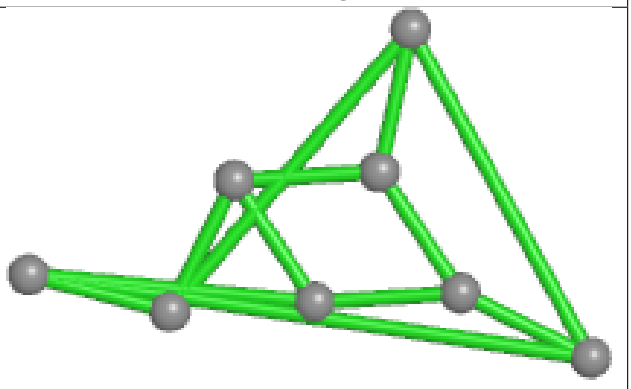
Bond lengths



Bond angles

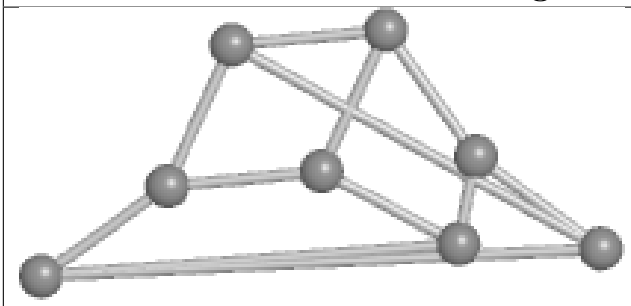


Torsions

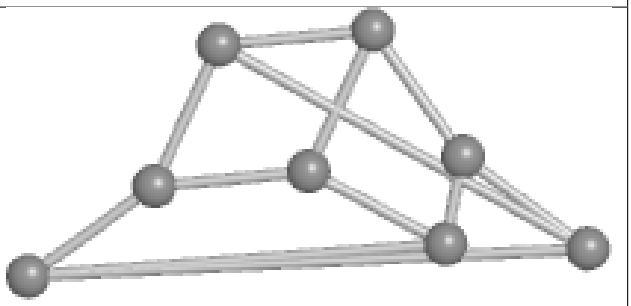


Rings

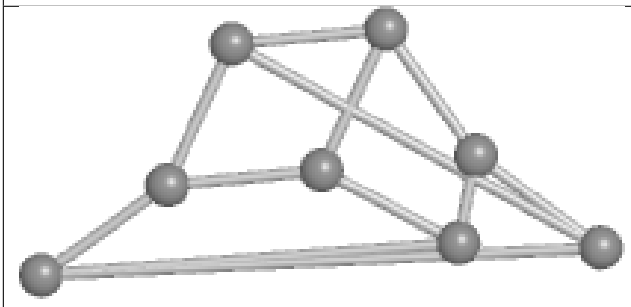
Ligand SF4 B 605



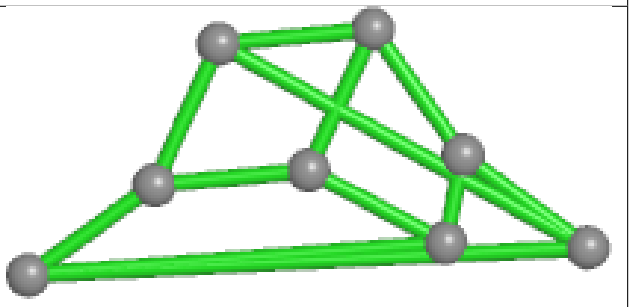
Bond lengths



Bond angles

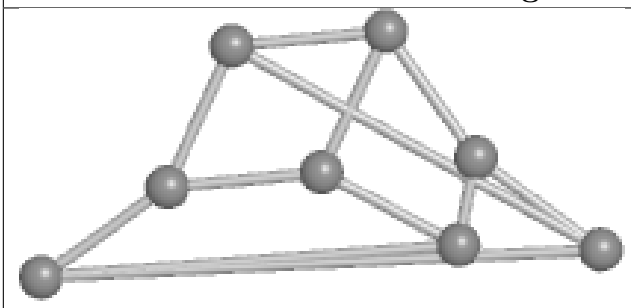


Torsions

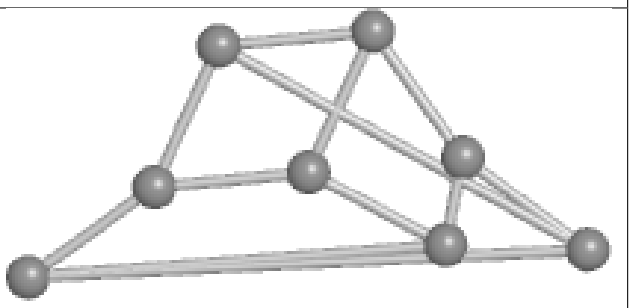


Rings

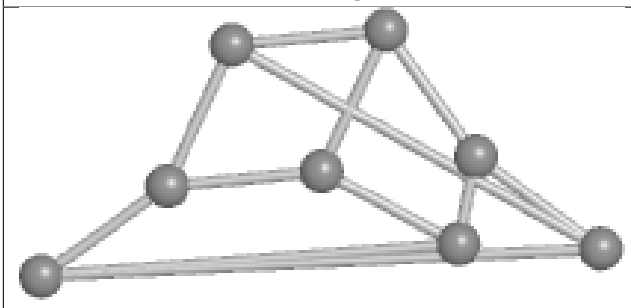
Ligand SF4 A 1207



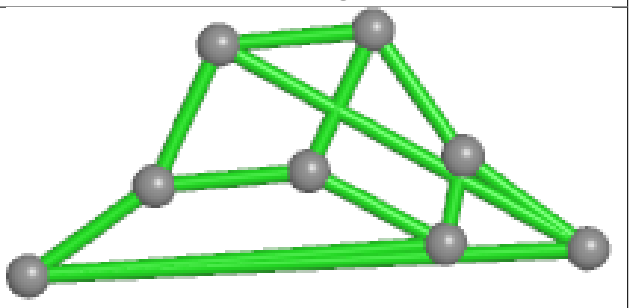
Bond lengths



Bond angles

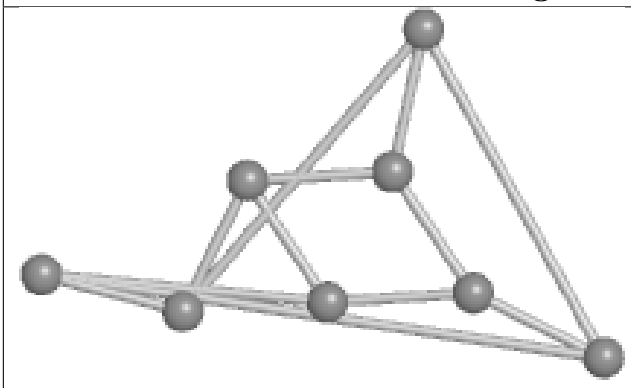


Torsions

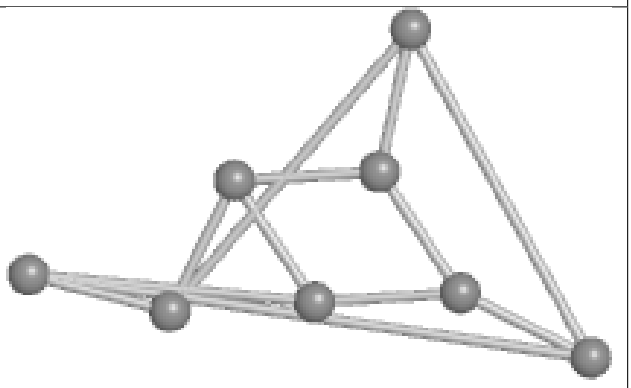


Rings

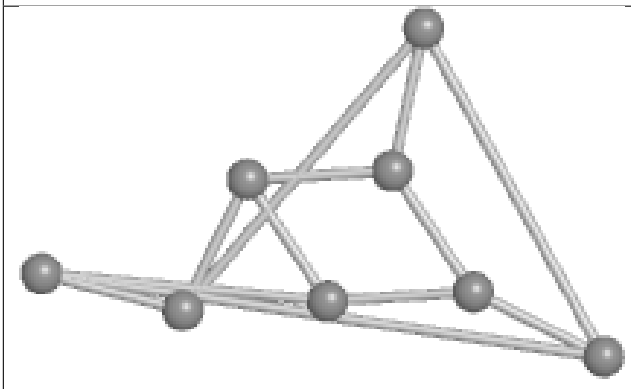
Ligand SF4 E 605



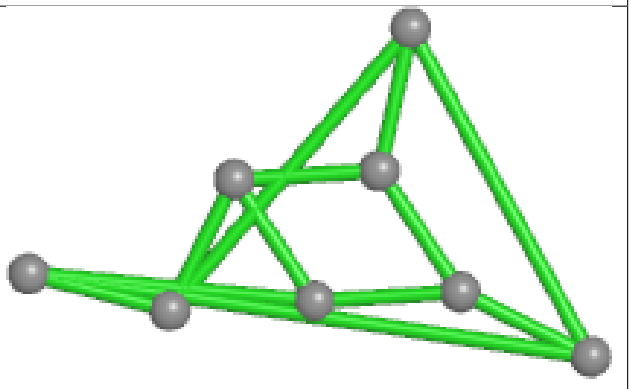
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

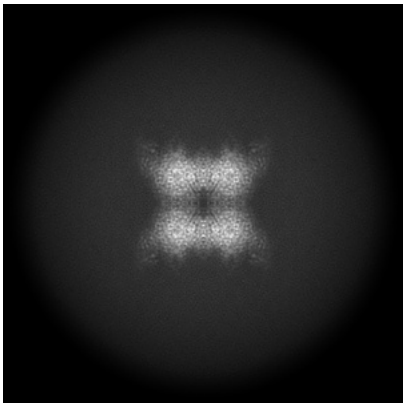
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-44761. These allow visual inspection of the internal detail of the map and identification of artifacts.

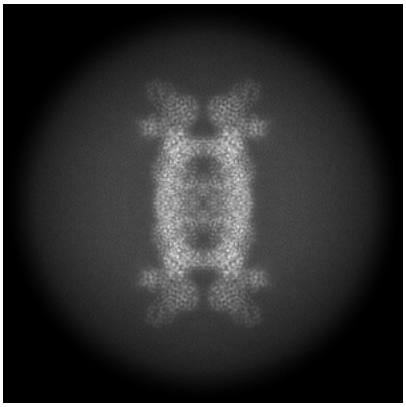
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

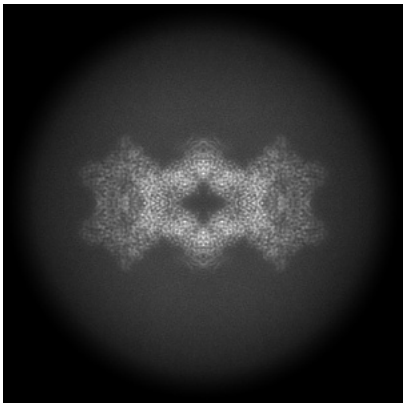
6.1.1 Primary map



X



Y

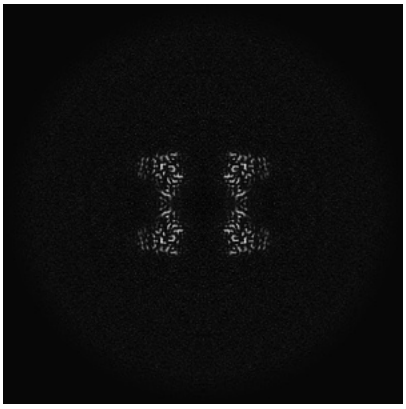


Z

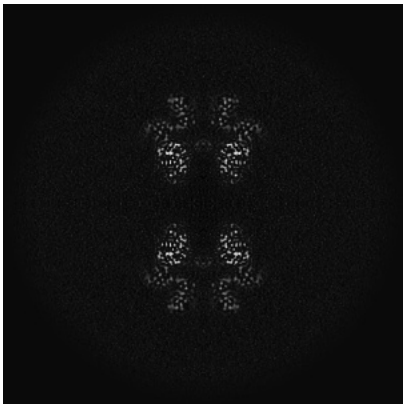
The images above show the map projected in three orthogonal directions.

6.2 Central slices

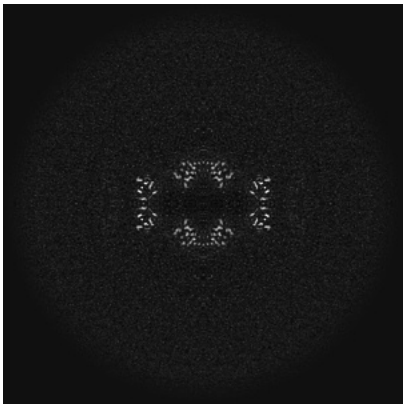
6.2.1 Primary map



X Index: 240



Y Index: 240

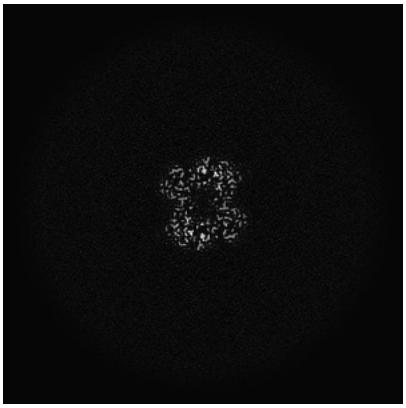


Z Index: 240

The images above show central slices of the map in three orthogonal directions.

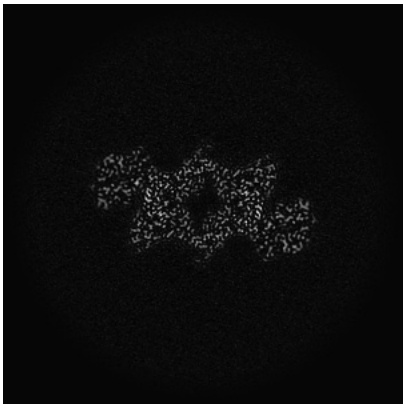
6.3 Largest variance slices (i)

6.3.1 Primary map



X Index: 179

Y Index: 212

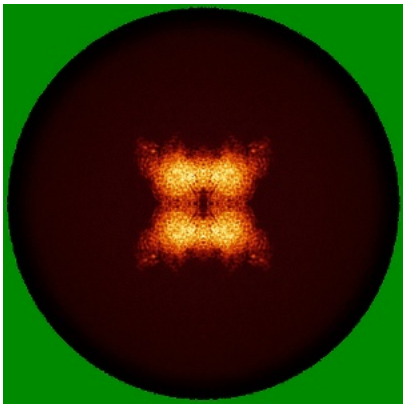


Z Index: 271

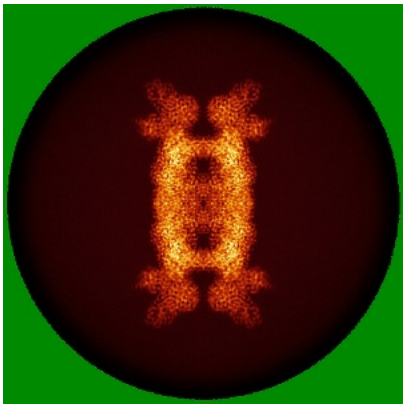
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

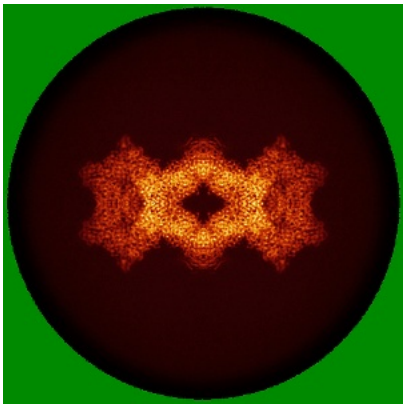
6.4.1 Primary map



X



Y

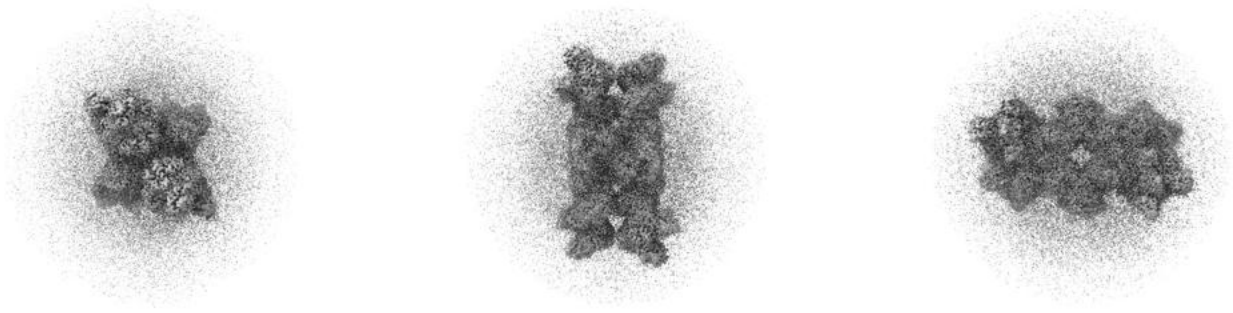


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.1. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

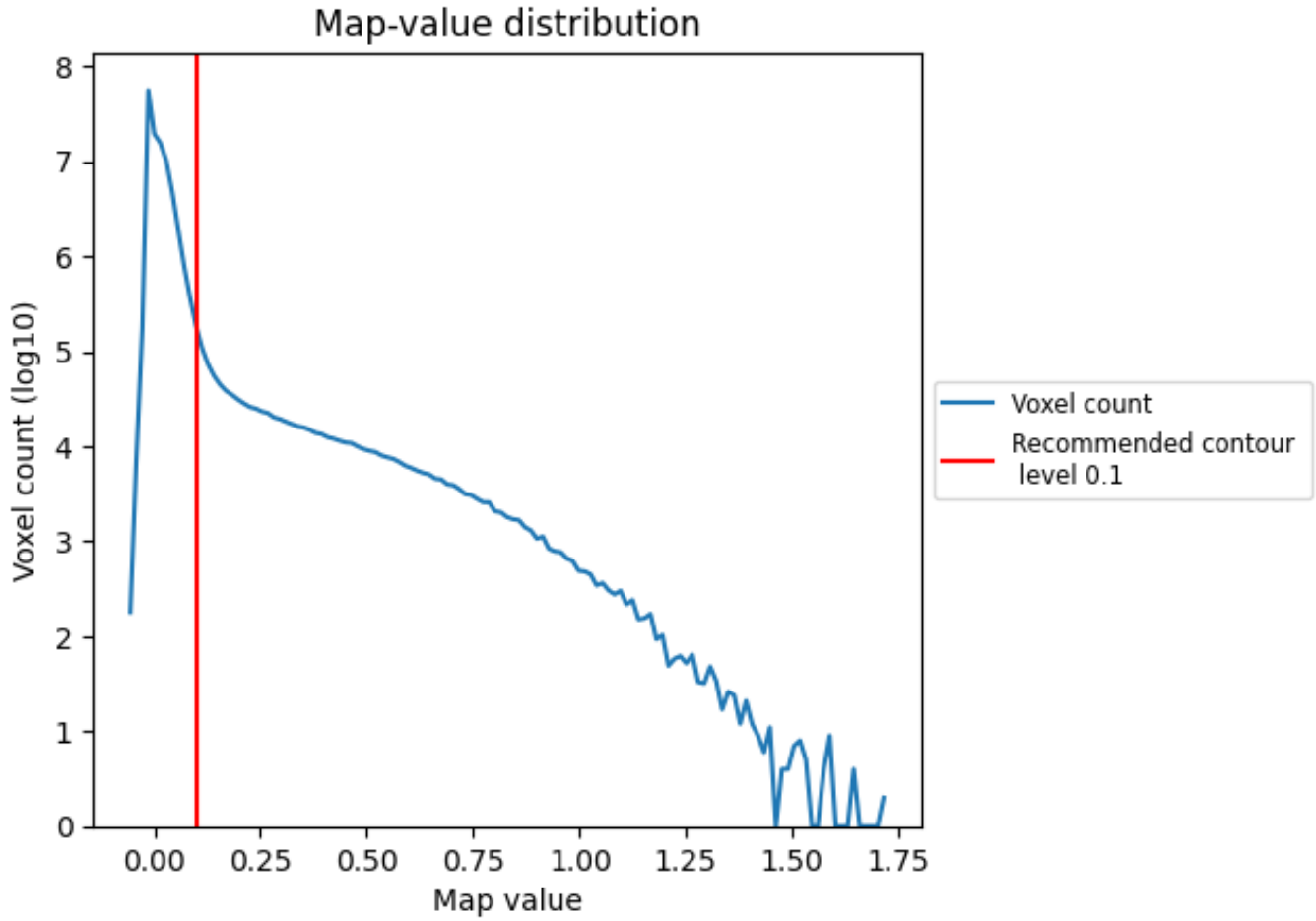
6.6 Mask visualisation (i)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis

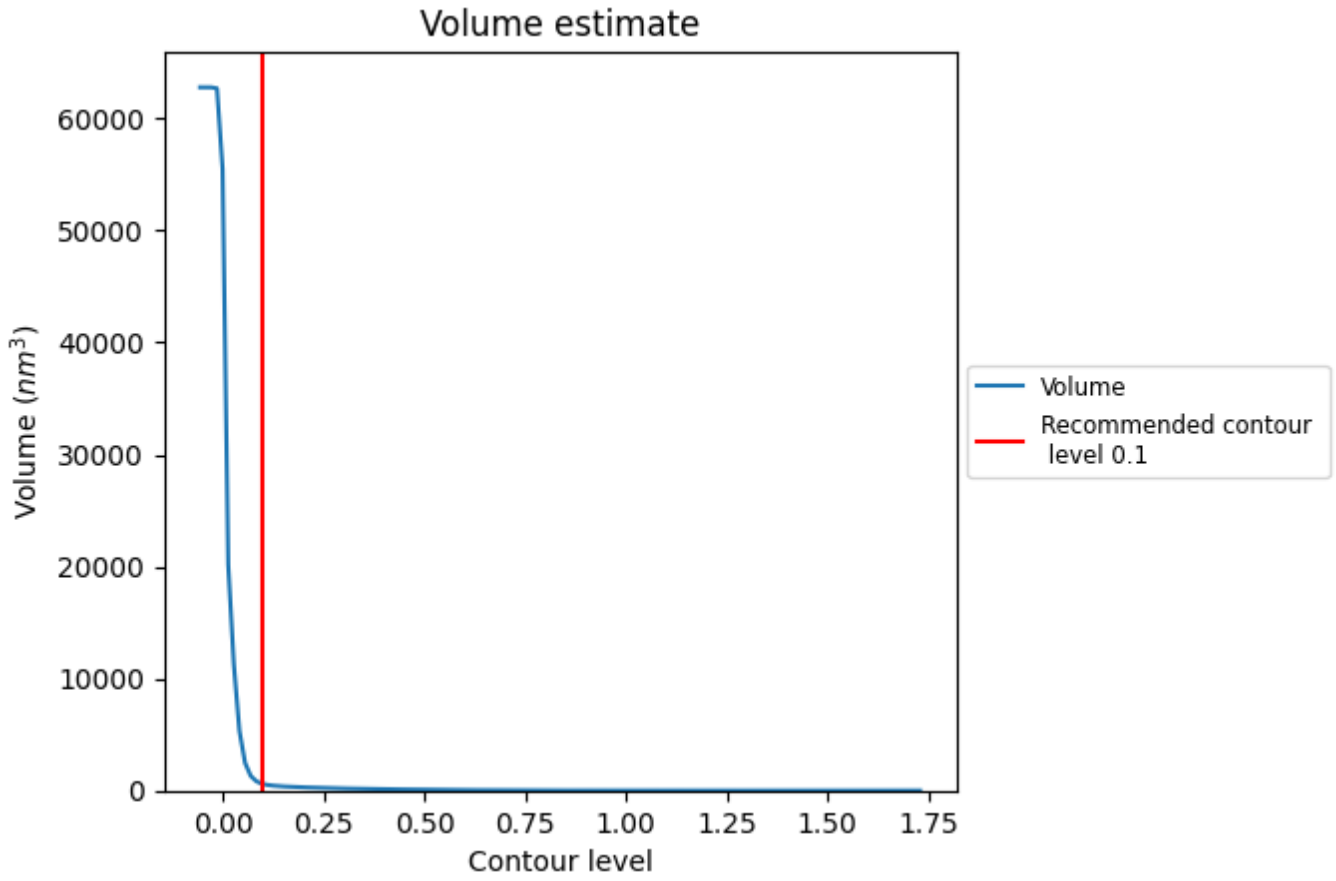
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

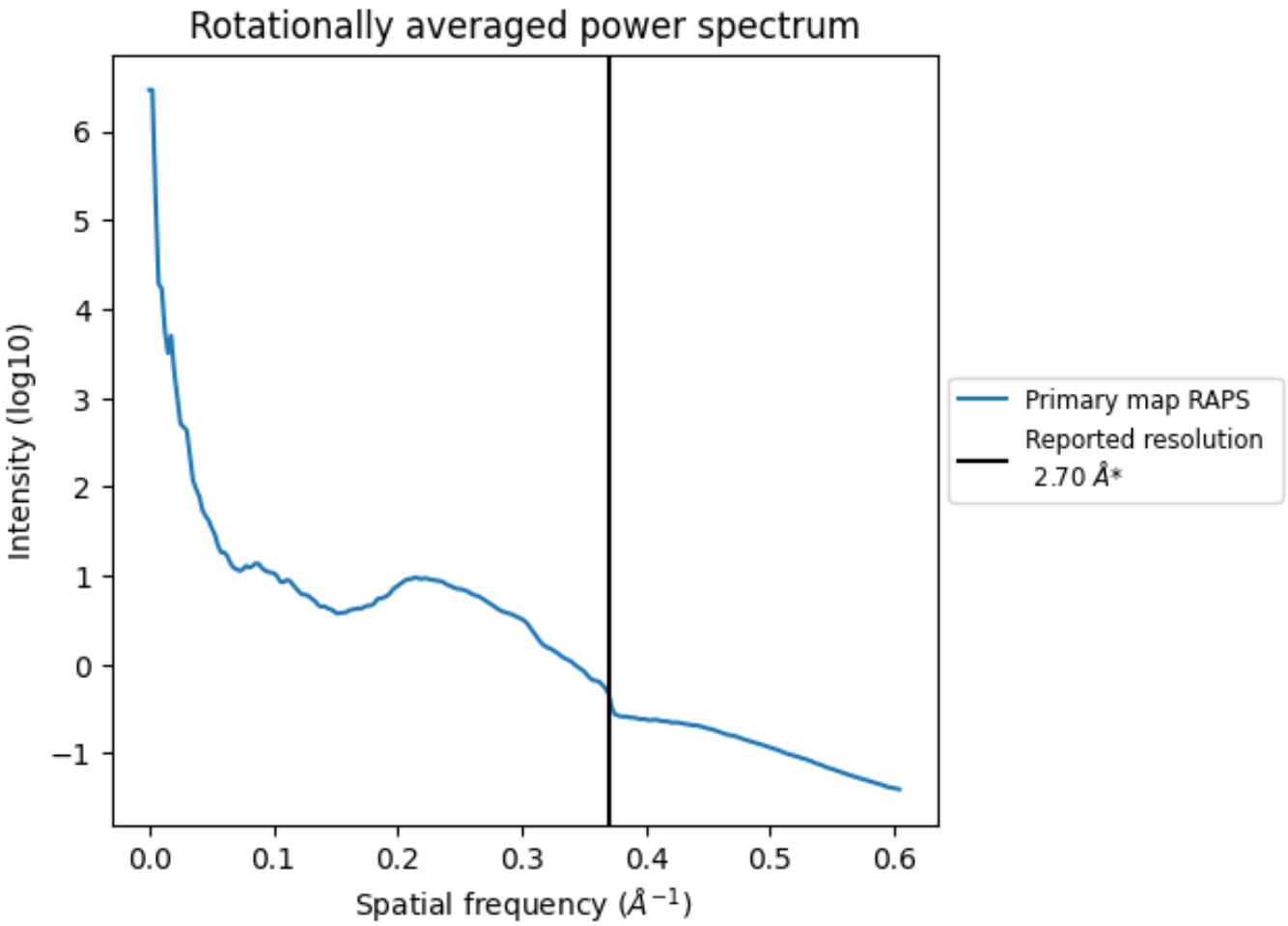
7.2 Volume estimate



The volume at the recommended contour level is 592 nm^3; this corresponds to an approximate mass of 535 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)



*Reported resolution corresponds to spatial frequency of 0.370 Å^{-1}

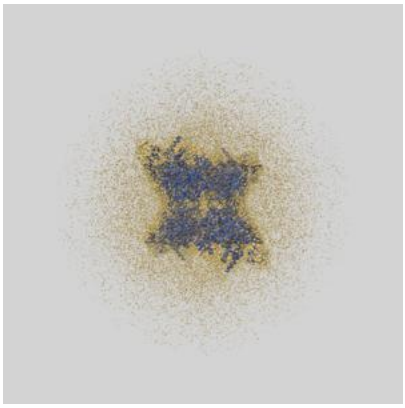
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

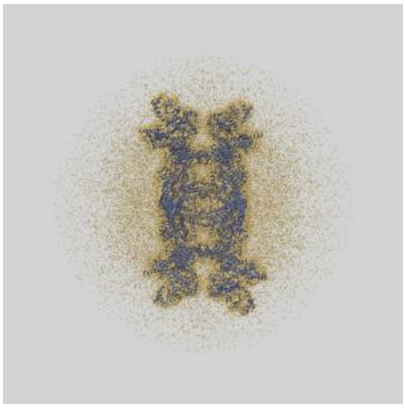
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-44761 and PDB model 9BP5. Per-residue inclusion information can be found in section 3 on page 10.

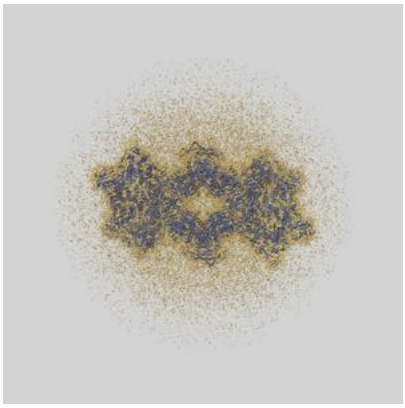
9.1 Map-model overlay



X



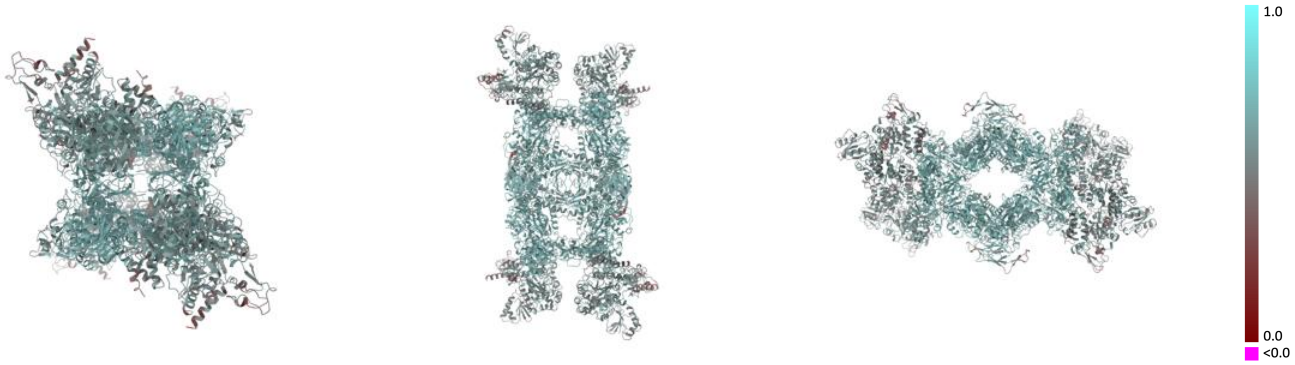
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.1 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

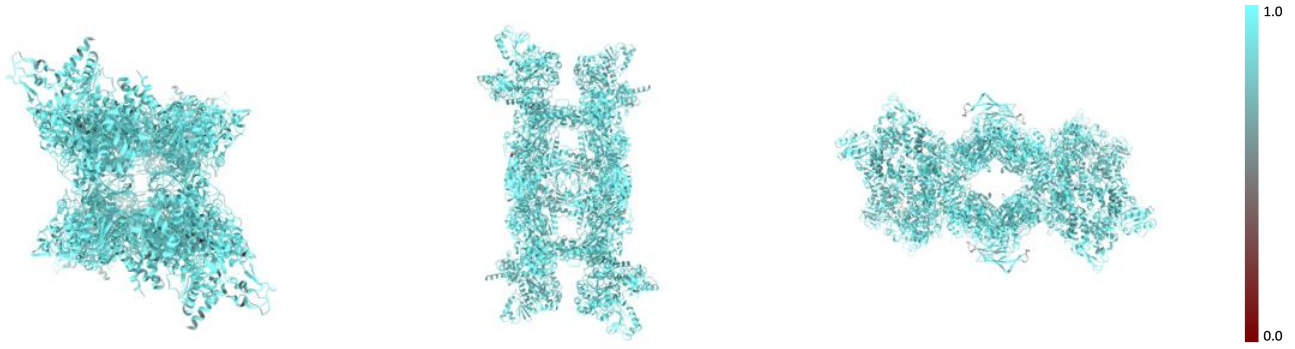
9.2 Q-score mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

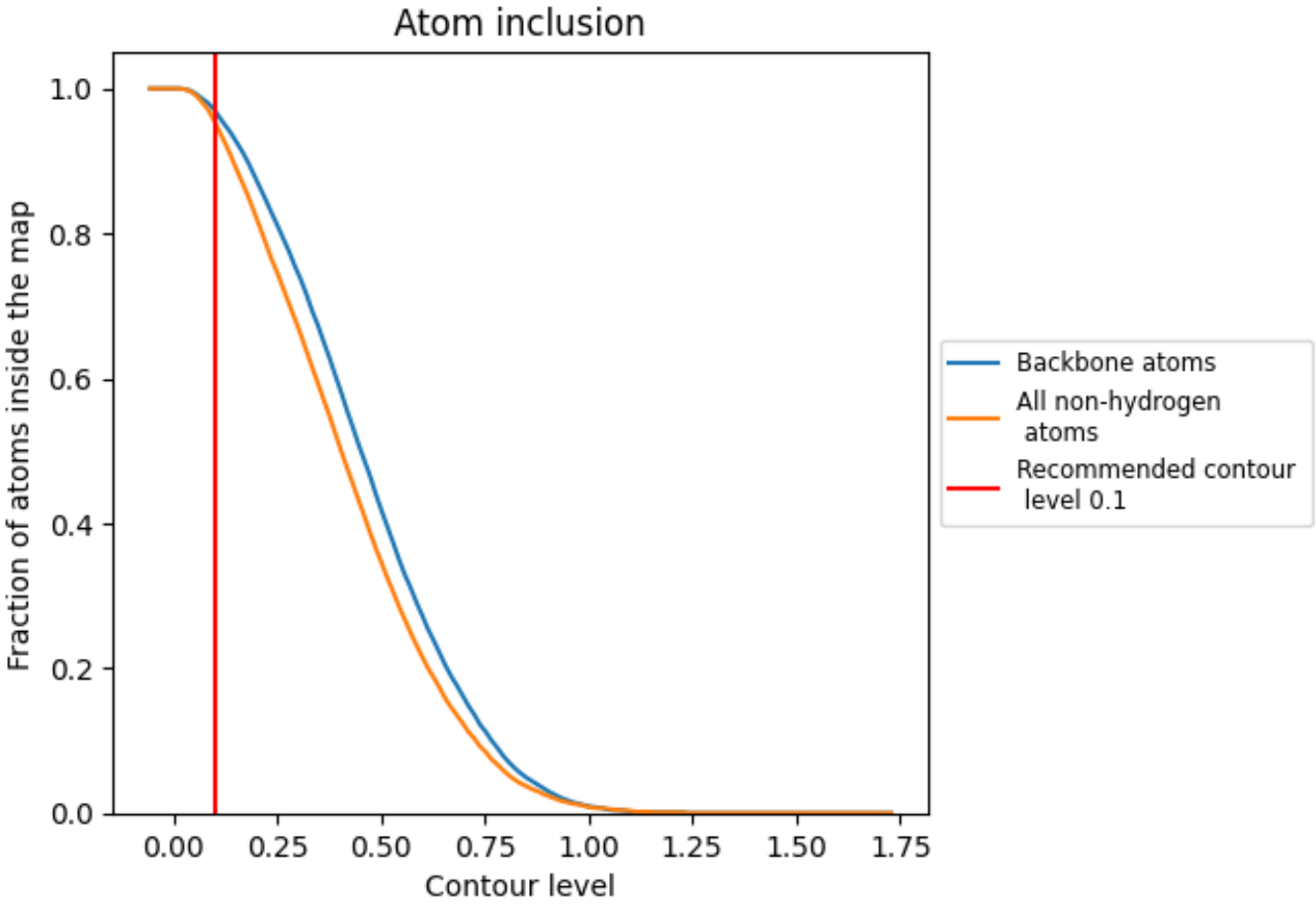
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.1).

9.4 Atom inclusion (i)



At the recommended contour level, 97% of all backbone atoms, 95% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9540	0.6060
A	0.9790	0.6520
B	0.9300	0.5420
C	0.9010	0.5210
D	0.9790	0.6510
E	0.9190	0.5370
F	0.8840	0.5130
G	0.9780	0.6510
H	0.9190	0.5350
I	0.8820	0.5120
J	0.9780	0.6520
K	0.9230	0.5370
L	0.8840	0.5130