



Full wwPDB EM Validation Report ⓘ

Mar 25, 2026 – 12:14 PM UTC

PDB ID : 8JJ3 / pdb_00008jj3
EMDB ID : EMD-36339
Title : Cryo-EM structure of nanodisc (PE:PS:PC) reconstituted GLIC at pH 2.5
Authors : Bharambe, N.; Li, Z.; Basak, S.
Deposited on : 2023-05-29
Resolution : 2.65 Å(reported)
Based on initial model : 8I48

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.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : **FAILED**
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

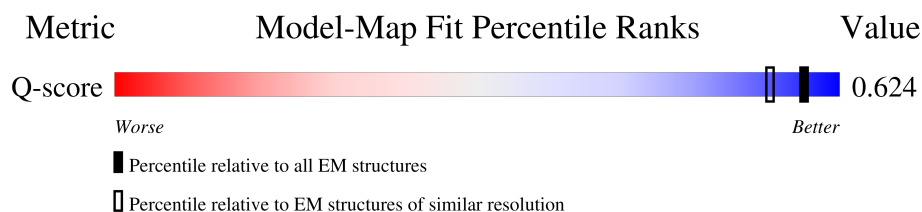
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.65 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	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Q-score	25397	8956 (2.15 - 3.14)

MolProbity failed to run properly - the sequence quality summary graphics cannot be shown.

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 14635 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.

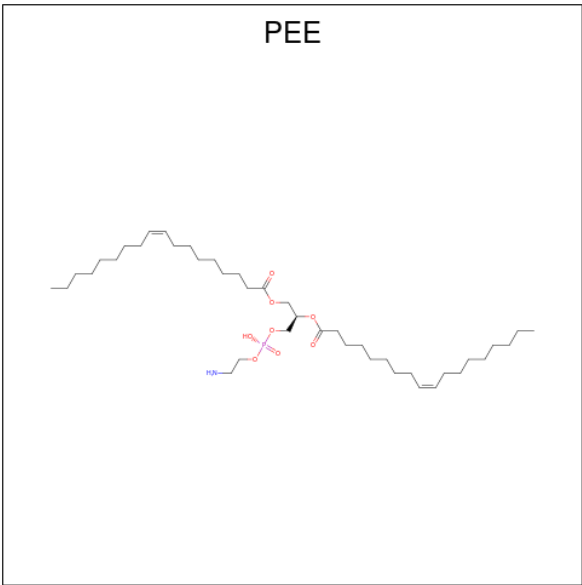
- Molecule 1 is a protein called Proton-gated ion channel.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	312	Total	C	N	O	S	1	0
			2540	1672	409	455	4		
1	C	312	Total	C	N	O	S	1	0
			2540	1672	409	455	4		
1	B	312	Total	C	N	O	S	1	0
			2540	1672	409	455	4		
1	D	312	Total	C	N	O	S	1	0
			2540	1672	409	455	4		
1	E	312	Total	C	N	O	S	1	0
			2540	1672	409	455	4		

- Molecule 2 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		AltConf
2	A	1	Total	Cl	0
			1	1	
2	C	1	Total	Cl	0
			1	1	
2	B	1	Total	Cl	0
			1	1	
2	D	1	Total	Cl	0
			1	1	
2	E	1	Total	Cl	0
			1	1	

- Molecule 3 is 1,2-dioleoyl-sn-glycero-3-phosphoethanolamine (CCD ID: PEE) (formula: C₄₁H₇₈NO₈P) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	O	P		0
			34	25	8	1		
3	A	1	Total	C	O	P		0
			30	21	8	1		
3	A	1	Total	C	N	O	P	0
			51	41	1	8	1	
3	A	1	Total	C	N	O	P	0
			29	19	1	8	1	
3	A	1	Total	C	N	O	P	0
			43	33	1	8	1	
3	A	1	Total	C	N	O	P	0
			42	32	1	8	1	
3	A	1	Total	C	N	O	P	0
			44	34	1	8	1	
3	A	1	Total	C				0
			18	18				
3	A	1	Total	C	N	O	P	0
			42	32	1	8	1	
3	C	1	Total	C	O	P		0
			34	25	8	1		
3	C	1	Total	C	O	P		0
			30	21	8	1		
3	C	1	Total	C	N	O	P	0
			51	41	1	8	1	
3	C	1	Total	C	N	O	P	0
			29	19	1	8	1	
3	C	1	Total	C	N	O	P	0
			43	33	1	8	1	

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Mol	Chain	Residues	Atoms					AltConf
3	C	1	Total	C	N	O	P	0
			42	32	1	8	1	
3	C	1	Total	C	N	O	P	0
			44	34	1	8	1	
3	C	1	Total	C				0
			18	18				
3	C	1	Total	C	N	O	P	0
			42	32	1	8	1	
3	B	1	Total	C	N	O	P	0
			42	32	1	8	1	
3	B	1	Total	C	O	P		0
			34	25	8	1		
3	B	1	Total	C	O	P		0
			30	21	8	1		
3	B	1	Total	C	N	O	P	0
			51	41	1	8	1	
3	B	1	Total	C	N	O	P	0
			29	19	1	8	1	
3	B	1	Total	C	N	O	P	0
			43	33	1	8	1	
3	B	1	Total	C	N	O	P	0
			42	32	1	8	1	
3	B	1	Total	C	N	O	P	0
			44	34	1	8	1	
3	B	1	Total	C				0
			18	18				
3	D	1	Total	C	N	O	P	0
			42	32	1	8	1	
3	D	1	Total	C	O	P		0
			34	25	8	1		
3	D	1	Total	C	O	P		0
			30	21	8	1		
3	D	1	Total	C	N	O	P	0
			51	41	1	8	1	
3	D	1	Total	C	N	O	P	0
			29	19	1	8	1	
3	D	1	Total	C	N	O	P	0
			43	33	1	8	1	
3	D	1	Total	C	N	O	P	0
			42	32	1	8	1	
3	D	1	Total	C	N	O	P	0
			44	34	1	8	1	

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Mol	Chain	Residues	Atoms	AltConf
3	D	1	Total C 18 18	0
3	E	1	Total C N O P 42 32 1 8 1	0
3	E	1	Total C O P 34 25 8 1	0
3	E	1	Total C O P 30 21 8 1	0
3	E	1	Total C N O P 51 41 1 8 1	0
3	E	1	Total C N O P 29 19 1 8 1	0
3	E	1	Total C N O P 43 33 1 8 1	0
3	E	1	Total C N O P 42 32 1 8 1	0
3	E	1	Total C N O P 44 34 1 8 1	0
3	E	1	Total C 18 18	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	AltConf
4	A	53	Total O 53 53	0
4	C	53	Total O 53 53	0
4	B	53	Total O 53 53	0
4	D	53	Total O 53 53	0
4	E	53	Total O 53 53	0

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3 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C5	Depositor
Number of particles used	98776	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 ($e^-/\text{\AA}^2$)	74	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.043	Depositor
Minimum map value	-0.021	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.0033	Depositor
Map size (Å)	219.7504, 219.7504, 219.7504	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8584, 0.8584, 0.8584	Depositor

4 Model quality [i](#)

4.1 Standard geometry [i](#)

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4.2 Too-close contacts [i](#)

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4.3 Torsion angles [i](#)

4.3.1 Protein backbone [i](#)

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4.3.2 Protein sidechains [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3.3 RNA [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

4.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

4.6 Ligand geometry [i](#)

Of 50 ligands modelled in this entry, 5 are monoatomic - leaving 45 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$
3	PEE	B	410	-	17,17,50	0.94	1 (5%)	16,16,55	0.77	0
3	PEE	D	407	-	42,42,50	0.97	2 (4%)	45,47,55	0.77	1 (2%)
3	PEE	B	407	-	42,42,50	0.97	2 (4%)	45,47,55	0.77	1 (2%)
3	PEE	D	409	-	43,43,50	0.95	2 (4%)	46,48,55	0.71	0
3	PEE	A	409	-	17,17,50	0.94	1 (5%)	16,16,55	0.77	0
3	PEE	E	409	-	43,43,50	0.95	2 (4%)	46,48,55	0.71	0
3	PEE	A	410	-	41,41,50	0.99	2 (4%)	44,46,55	0.70	0
3	PEE	D	406	-	28,28,50	0.95	1 (3%)	31,33,55	0.64	0
3	PEE	A	405	-	28,28,50	0.95	1 (3%)	31,33,55	0.64	0
3	PEE	A	407	-	41,41,50	0.95	2 (4%)	44,46,55	0.71	0
3	PEE	B	409	-	43,43,50	0.95	2 (4%)	46,48,55	0.71	0
3	PEE	D	408	-	41,41,50	0.95	2 (4%)	44,46,55	0.70	0
3	PEE	B	403	-	33,33,50	0.96	2 (6%)	36,38,55	1.16	2 (5%)
3	PEE	E	406	-	28,28,50	0.95	1 (3%)	31,33,55	0.64	0
3	PEE	A	406	-	42,42,50	0.96	2 (4%)	45,47,55	0.77	1 (2%)
3	PEE	D	404	-	29,29,50	0.77	1 (3%)	32,34,55	1.13	3 (9%)
3	PEE	A	404	-	50,50,50	0.89	2 (4%)	53,55,55	0.58	0
3	PEE	E	408	-	41,41,50	0.95	2 (4%)	44,46,55	0.70	0
3	PEE	B	401	-	41,41,50	0.99	2 (4%)	44,46,55	0.70	0
3	PEE	A	408	-	43,43,50	0.96	2 (4%)	46,48,55	0.71	0
3	PEE	D	405	-	50,50,50	0.89	2 (4%)	53,55,55	0.58	0
3	PEE	E	404	-	29,29,50	0.76	1 (3%)	32,34,55	1.13	2 (6%)
3	PEE	E	401	-	41,41,50	0.98	2 (4%)	44,46,55	0.70	0
3	PEE	C	409	-	17,17,50	0.94	1 (5%)	16,16,55	0.77	0
3	PEE	C	402	-	33,33,50	0.96	2 (6%)	36,38,55	1.16	2 (5%)
3	PEE	E	410	-	17,17,50	0.94	1 (5%)	16,16,55	0.77	0
3	PEE	C	410	-	41,41,50	0.98	2 (4%)	44,46,55	0.70	0
3	PEE	E	407	-	42,42,50	0.96	2 (4%)	45,47,55	0.77	1 (2%)
3	PEE	D	403	-	33,33,50	0.96	2 (6%)	36,38,55	1.16	2 (5%)
3	PEE	A	403	-	29,29,50	0.77	1 (3%)	32,34,55	1.13	2 (6%)
3	PEE	C	407	-	41,41,50	0.95	2 (4%)	44,46,55	0.70	0
3	PEE	C	405	-	28,28,50	0.95	1 (3%)	31,33,55	0.64	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	PEE	B	406	-	28,28,50	0.95	1 (3%)	31,33,55	0.64	0
3	PEE	E	405	-	50,50,50	0.89	2 (4%)	53,55,55	0.58	0
3	PEE	C	403	-	29,29,50	0.77	1 (3%)	32,34,55	1.13	2 (6%)
3	PEE	C	406	-	42,42,50	0.97	2 (4%)	45,47,55	0.77	1 (2%)
3	PEE	B	408	-	41,41,50	0.95	2 (4%)	44,46,55	0.70	0
3	PEE	B	405	-	50,50,50	0.89	2 (4%)	53,55,55	0.58	0
3	PEE	C	408	-	43,43,50	0.96	2 (4%)	46,48,55	0.71	0
3	PEE	D	401	-	41,41,50	0.98	2 (4%)	44,46,55	0.70	0
3	PEE	C	404	-	50,50,50	0.89	2 (4%)	53,55,55	0.58	0
3	PEE	E	403	-	33,33,50	0.96	2 (6%)	36,38,55	1.16	2 (5%)
3	PEE	A	402	-	33,33,50	0.96	2 (6%)	36,38,55	1.16	2 (5%)
3	PEE	B	404	-	29,29,50	0.77	1 (3%)	32,34,55	1.13	2 (6%)
3	PEE	D	410	-	17,17,50	0.94	1 (5%)	16,16,55	0.77	0

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
3	PEE	B	410	-	-	4/15/15/54	-
3	PEE	D	407	-	-	17/46/46/54	-
3	PEE	B	407	-	-	17/46/46/54	-
3	PEE	D	409	-	-	15/47/47/54	-
3	PEE	A	409	-	-	4/15/15/54	-
3	PEE	E	409	-	-	15/47/47/54	-
3	PEE	A	410	-	-	17/45/45/54	-
3	PEE	D	406	-	-	4/32/32/54	-
3	PEE	A	405	-	-	4/32/32/54	-
3	PEE	A	407	-	-	10/45/45/54	-
3	PEE	B	409	-	-	15/47/47/54	-
3	PEE	D	408	-	-	10/45/45/54	-
3	PEE	B	403	-	-	9/35/35/54	-
3	PEE	E	406	-	-	4/32/32/54	-
3	PEE	A	406	-	-	17/46/46/54	-
3	PEE	D	404	-	-	7/31/31/54	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PEE	A	404	-	-	17/54/54/54	-
3	PEE	E	408	-	-	10/45/45/54	-
3	PEE	B	401	-	-	17/45/45/54	-
3	PEE	A	408	-	-	15/47/47/54	-
3	PEE	D	405	-	-	17/54/54/54	-
3	PEE	E	404	-	-	7/31/31/54	-
3	PEE	E	401	-	-	17/45/45/54	-
3	PEE	C	409	-	-	4/15/15/54	-
3	PEE	C	402	-	-	9/35/35/54	-
3	PEE	E	410	-	-	4/15/15/54	-
3	PEE	C	410	-	-	17/45/45/54	-
3	PEE	E	407	-	-	17/46/46/54	-
3	PEE	D	403	-	-	9/35/35/54	-
3	PEE	A	403	-	-	7/31/31/54	-
3	PEE	C	407	-	-	10/45/45/54	-
3	PEE	C	405	-	-	4/32/32/54	-
3	PEE	B	406	-	-	4/32/32/54	-
3	PEE	E	405	-	-	17/54/54/54	-
3	PEE	C	403	-	-	7/31/31/54	-
3	PEE	C	406	-	-	17/46/46/54	-
3	PEE	B	408	-	-	10/45/45/54	-
3	PEE	B	405	-	-	17/54/54/54	-
3	PEE	C	408	-	-	15/47/47/54	-
3	PEE	D	401	-	-	17/45/45/54	-
3	PEE	C	404	-	-	17/54/54/54	-
3	PEE	E	403	-	-	9/35/35/54	-
3	PEE	A	402	-	-	9/35/35/54	-
3	PEE	B	404	-	-	7/31/31/54	-
3	PEE	D	410	-	-	4/15/15/54	-

All (75) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	401	PEE	C18-C19	3.75	1.53	1.31
3	B	401	PEE	C18-C19	3.75	1.53	1.31
3	B	410	PEE	C18-C19	3.74	1.52	1.31

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	410	PEE	C18-C19	3.74	1.52	1.31
3	E	401	PEE	C18-C19	3.74	1.52	1.31
3	E	410	PEE	C18-C19	3.74	1.52	1.31
3	A	410	PEE	C18-C19	3.73	1.52	1.31
3	C	410	PEE	C18-C19	3.73	1.52	1.31
3	C	409	PEE	C18-C19	3.73	1.52	1.31
3	A	409	PEE	C18-C19	3.73	1.52	1.31
3	C	407	PEE	C18-C19	3.72	1.52	1.31
3	D	407	PEE	C39-C38	3.71	1.52	1.31
3	C	406	PEE	C39-C38	3.71	1.52	1.31
3	C	408	PEE	C39-C38	3.71	1.52	1.31
3	D	409	PEE	C39-C38	3.71	1.52	1.31
3	D	408	PEE	C18-C19	3.71	1.52	1.31
3	B	407	PEE	C18-C19	3.70	1.52	1.31
3	E	409	PEE	C39-C38	3.70	1.52	1.31
3	A	406	PEE	C39-C38	3.70	1.52	1.31
3	A	402	PEE	C39-C38	3.70	1.52	1.31
3	A	408	PEE	C39-C38	3.70	1.52	1.31
3	B	407	PEE	C39-C38	3.70	1.52	1.31
3	E	407	PEE	C39-C38	3.70	1.52	1.31
3	B	408	PEE	C18-C19	3.70	1.52	1.31
3	A	407	PEE	C18-C19	3.70	1.52	1.31
3	D	403	PEE	C39-C38	3.70	1.52	1.31
3	B	405	PEE	C18-C19	3.69	1.52	1.31
3	C	404	PEE	C18-C19	3.69	1.52	1.31
3	E	408	PEE	C18-C19	3.69	1.52	1.31
3	B	409	PEE	C39-C38	3.69	1.52	1.31
3	E	405	PEE	C18-C19	3.69	1.52	1.31
3	A	410	PEE	C39-C38	3.69	1.52	1.31
3	C	406	PEE	C18-C19	3.69	1.52	1.31
3	E	407	PEE	C18-C19	3.69	1.52	1.31
3	B	401	PEE	C39-C38	3.69	1.52	1.31
3	A	406	PEE	C18-C19	3.69	1.52	1.31
3	D	407	PEE	C18-C19	3.69	1.52	1.31
3	E	401	PEE	C39-C38	3.68	1.52	1.31
3	B	403	PEE	C39-C38	3.68	1.52	1.31
3	C	410	PEE	C39-C38	3.68	1.52	1.31
3	C	402	PEE	C39-C38	3.68	1.52	1.31
3	E	403	PEE	C39-C38	3.68	1.52	1.31
3	D	405	PEE	C18-C19	3.68	1.52	1.31
3	A	404	PEE	C39-C38	3.68	1.52	1.31
3	E	405	PEE	C39-C38	3.68	1.52	1.31

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	405	PEE	C39-C38	3.68	1.52	1.31
3	C	404	PEE	C39-C38	3.68	1.52	1.31
3	D	401	PEE	C39-C38	3.67	1.52	1.31
3	A	404	PEE	C18-C19	3.67	1.52	1.31
3	D	405	PEE	C39-C38	3.67	1.52	1.31
3	C	408	PEE	C18-C19	3.67	1.52	1.31
3	D	409	PEE	C18-C19	3.66	1.52	1.31
3	A	408	PEE	C18-C19	3.66	1.52	1.31
3	B	406	PEE	C19-C18	3.66	1.52	1.29
3	C	405	PEE	C19-C18	3.66	1.52	1.29
3	D	406	PEE	C19-C18	3.66	1.52	1.29
3	E	409	PEE	C18-C19	3.66	1.52	1.31
3	E	406	PEE	C19-C18	3.66	1.52	1.29
3	A	405	PEE	C19-C18	3.66	1.52	1.29
3	B	409	PEE	C18-C19	3.65	1.52	1.31
3	B	408	PEE	C38-C39	3.20	1.52	1.29
3	E	408	PEE	C38-C39	3.20	1.52	1.29
3	D	408	PEE	C38-C39	3.20	1.52	1.29
3	A	407	PEE	C38-C39	3.19	1.52	1.29
3	C	407	PEE	C38-C39	3.18	1.52	1.29
3	A	403	PEE	P-O4P	2.98	1.65	1.54
3	C	403	PEE	P-O4P	2.98	1.65	1.54
3	B	404	PEE	P-O4P	2.97	1.65	1.54
3	D	404	PEE	P-O4P	2.97	1.65	1.54
3	E	404	PEE	P-O4P	2.95	1.65	1.54
3	B	403	PEE	P-O4P	2.93	1.65	1.54
3	A	402	PEE	P-O4P	2.93	1.65	1.54
3	E	403	PEE	P-O4P	2.92	1.65	1.54
3	D	403	PEE	P-O4P	2.91	1.65	1.54
3	C	402	PEE	P-O4P	2.91	1.65	1.54

All (26) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	402	PEE	O4P-P-O3P	-5.30	92.86	106.67
3	E	403	PEE	O4P-P-O3P	-5.29	92.88	106.67
3	B	403	PEE	O4P-P-O3P	-5.29	92.88	106.67
3	C	402	PEE	O4P-P-O3P	-5.28	92.90	106.67
3	D	403	PEE	O4P-P-O3P	-5.28	92.91	106.67
3	C	403	PEE	O4P-P-O3P	-5.03	93.56	106.67
3	A	403	PEE	O4P-P-O3P	-5.02	93.57	106.67
3	D	404	PEE	O4P-P-O3P	-5.01	93.59	106.67

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	404	PEE	O4P-P-O3P	-5.01	93.61	106.67
3	B	404	PEE	O4P-P-O3P	-5.00	93.63	106.67
3	E	403	PEE	O2P-P-O1P	2.28	119.72	110.83
3	A	402	PEE	O2P-P-O1P	2.28	119.71	110.83
3	B	403	PEE	O2P-P-O1P	2.27	119.68	110.83
3	D	403	PEE	O2P-P-O1P	2.27	119.68	110.83
3	C	402	PEE	O2P-P-O1P	2.26	119.65	110.83
3	A	403	PEE	O2P-P-O1P	2.23	119.54	110.83
3	C	403	PEE	O2P-P-O1P	2.23	119.53	110.83
3	D	404	PEE	O2P-P-O1P	2.22	119.48	110.83
3	E	404	PEE	O2P-P-O1P	2.22	119.48	110.83
3	B	407	PEE	C20-C19-C18	-2.22	113.08	126.42
3	B	404	PEE	O2P-P-O1P	2.21	119.47	110.83
3	D	407	PEE	C20-C19-C18	-2.21	113.11	126.42
3	A	406	PEE	C20-C19-C18	-2.21	113.12	126.42
3	E	407	PEE	C20-C19-C18	-2.21	113.13	126.42
3	C	406	PEE	C20-C19-C18	-2.21	113.13	126.42
3	D	404	PEE	O3P-P-O1P	2.00	111.86	106.44

There are no chirality outliers.

All (500) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	402	PEE	O4-C10-O2-C2
3	A	403	PEE	C1-O3P-P-O2P
3	A	403	PEE	C1-O3P-P-O4P
3	A	404	PEE	C1-O3P-P-O2P
3	A	404	PEE	C1-O3P-P-O1P
3	A	404	PEE	C1-O3P-P-O4P
3	A	404	PEE	C4-O4P-P-O1P
3	A	406	PEE	C11-C10-O2-C2
3	A	406	PEE	O4-C10-O2-C2
3	A	407	PEE	O4-C10-O2-C2
3	A	407	PEE	C4-O4P-P-O1P
3	A	408	PEE	O2-C2-C3-O3
3	A	410	PEE	C19-C20-C21-C22
3	A	410	PEE	C11-C10-O2-C2
3	A	410	PEE	O4-C10-O2-C2
3	A	410	PEE	C1-O3P-P-O1P
3	A	410	PEE	C4-O4P-P-O3P
3	A	410	PEE	C4-O4P-P-O2P
3	C	402	PEE	O4-C10-O2-C2

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Mol	Chain	Res	Type	Atoms
3	C	403	PEE	C1-O3P-P-O2P
3	C	403	PEE	C1-O3P-P-O4P
3	C	404	PEE	C1-O3P-P-O2P
3	C	404	PEE	C1-O3P-P-O1P
3	C	404	PEE	C1-O3P-P-O4P
3	C	404	PEE	C4-O4P-P-O1P
3	C	406	PEE	C11-C10-O2-C2
3	C	406	PEE	O4-C10-O2-C2
3	C	407	PEE	O4-C10-O2-C2
3	C	407	PEE	C4-O4P-P-O1P
3	C	408	PEE	O2-C2-C3-O3
3	C	410	PEE	C19-C20-C21-C22
3	C	410	PEE	C11-C10-O2-C2
3	C	410	PEE	O4-C10-O2-C2
3	C	410	PEE	C1-O3P-P-O1P
3	C	410	PEE	C4-O4P-P-O3P
3	C	410	PEE	C4-O4P-P-O2P
3	B	401	PEE	C19-C20-C21-C22
3	B	401	PEE	C11-C10-O2-C2
3	B	401	PEE	O4-C10-O2-C2
3	B	401	PEE	C1-O3P-P-O1P
3	B	401	PEE	C4-O4P-P-O3P
3	B	401	PEE	C4-O4P-P-O2P
3	B	403	PEE	O4-C10-O2-C2
3	B	404	PEE	C1-O3P-P-O2P
3	B	404	PEE	C1-O3P-P-O4P
3	B	405	PEE	C1-O3P-P-O2P
3	B	405	PEE	C1-O3P-P-O1P
3	B	405	PEE	C1-O3P-P-O4P
3	B	405	PEE	C4-O4P-P-O1P
3	B	407	PEE	C11-C10-O2-C2
3	B	407	PEE	O4-C10-O2-C2
3	B	408	PEE	O4-C10-O2-C2
3	B	408	PEE	C4-O4P-P-O1P
3	B	409	PEE	O2-C2-C3-O3
3	D	401	PEE	C19-C20-C21-C22
3	D	401	PEE	C11-C10-O2-C2
3	D	401	PEE	O4-C10-O2-C2
3	D	401	PEE	C1-O3P-P-O1P
3	D	401	PEE	C4-O4P-P-O3P
3	D	401	PEE	C4-O4P-P-O2P
3	D	403	PEE	O4-C10-O2-C2

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Mol	Chain	Res	Type	Atoms
3	D	404	PEE	C1-O3P-P-O2P
3	D	404	PEE	C1-O3P-P-O4P
3	D	405	PEE	C1-O3P-P-O2P
3	D	405	PEE	C1-O3P-P-O1P
3	D	405	PEE	C1-O3P-P-O4P
3	D	405	PEE	C4-O4P-P-O1P
3	D	407	PEE	C11-C10-O2-C2
3	D	407	PEE	O4-C10-O2-C2
3	D	408	PEE	O4-C10-O2-C2
3	D	408	PEE	C4-O4P-P-O1P
3	D	409	PEE	O2-C2-C3-O3
3	E	401	PEE	C19-C20-C21-C22
3	E	401	PEE	C11-C10-O2-C2
3	E	401	PEE	O4-C10-O2-C2
3	E	401	PEE	C1-O3P-P-O1P
3	E	401	PEE	C4-O4P-P-O3P
3	E	401	PEE	C4-O4P-P-O2P
3	E	403	PEE	O4-C10-O2-C2
3	E	404	PEE	C1-O3P-P-O2P
3	E	404	PEE	C1-O3P-P-O4P
3	E	405	PEE	C1-O3P-P-O2P
3	E	405	PEE	C1-O3P-P-O1P
3	E	405	PEE	C1-O3P-P-O4P
3	E	405	PEE	C4-O4P-P-O1P
3	E	407	PEE	C11-C10-O2-C2
3	E	407	PEE	O4-C10-O2-C2
3	E	408	PEE	O4-C10-O2-C2
3	E	408	PEE	C4-O4P-P-O1P
3	E	409	PEE	O2-C2-C3-O3
3	A	402	PEE	O5-C30-O3-C3
3	C	402	PEE	O5-C30-O3-C3
3	B	403	PEE	O5-C30-O3-C3
3	D	403	PEE	O5-C30-O3-C3
3	E	403	PEE	O5-C30-O3-C3
3	A	402	PEE	C31-C30-O3-C3
3	C	402	PEE	C31-C30-O3-C3
3	B	403	PEE	C31-C30-O3-C3
3	D	403	PEE	C31-C30-O3-C3
3	E	403	PEE	C31-C30-O3-C3
3	A	402	PEE	C11-C10-O2-C2
3	A	407	PEE	C11-C10-O2-C2
3	C	402	PEE	C11-C10-O2-C2

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Mol	Chain	Res	Type	Atoms
3	C	407	PEE	C11-C10-O2-C2
3	B	403	PEE	C11-C10-O2-C2
3	B	408	PEE	C11-C10-O2-C2
3	D	403	PEE	C11-C10-O2-C2
3	D	408	PEE	C11-C10-O2-C2
3	E	403	PEE	C11-C10-O2-C2
3	E	408	PEE	C11-C10-O2-C2
3	A	408	PEE	O5-C30-O3-C3
3	C	408	PEE	O5-C30-O3-C3
3	B	409	PEE	O5-C30-O3-C3
3	D	409	PEE	O5-C30-O3-C3
3	E	409	PEE	O5-C30-O3-C3
3	A	408	PEE	C31-C30-O3-C3
3	C	408	PEE	C31-C30-O3-C3
3	B	409	PEE	C31-C30-O3-C3
3	D	409	PEE	C31-C30-O3-C3
3	E	409	PEE	C31-C30-O3-C3
3	A	404	PEE	C17-C18-C19-C20
3	C	404	PEE	C17-C18-C19-C20
3	B	405	PEE	C17-C18-C19-C20
3	D	405	PEE	C17-C18-C19-C20
3	E	405	PEE	C17-C18-C19-C20
3	A	410	PEE	O5-C30-O3-C3
3	C	410	PEE	O5-C30-O3-C3
3	B	401	PEE	O5-C30-O3-C3
3	D	401	PEE	O5-C30-O3-C3
3	E	401	PEE	O5-C30-O3-C3
3	A	406	PEE	C31-C30-O3-C3
3	A	410	PEE	C31-C30-O3-C3
3	C	406	PEE	C31-C30-O3-C3
3	C	410	PEE	C31-C30-O3-C3
3	B	401	PEE	C31-C30-O3-C3
3	B	407	PEE	C31-C30-O3-C3
3	D	401	PEE	C31-C30-O3-C3
3	D	407	PEE	C31-C30-O3-C3
3	E	401	PEE	C31-C30-O3-C3
3	E	407	PEE	C31-C30-O3-C3
3	A	406	PEE	O5-C30-O3-C3
3	C	406	PEE	O5-C30-O3-C3
3	B	407	PEE	O5-C30-O3-C3
3	D	407	PEE	O5-C30-O3-C3
3	E	407	PEE	O5-C30-O3-C3

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Mol	Chain	Res	Type	Atoms
3	A	409	PEE	C17-C18-C19-C20
3	C	409	PEE	C17-C18-C19-C20
3	B	410	PEE	C17-C18-C19-C20
3	D	410	PEE	C17-C18-C19-C20
3	E	410	PEE	C17-C18-C19-C20
3	A	406	PEE	C30-C31-C32-C33
3	C	406	PEE	C30-C31-C32-C33
3	B	407	PEE	C30-C31-C32-C33
3	D	407	PEE	C30-C31-C32-C33
3	E	407	PEE	C30-C31-C32-C33
3	A	406	PEE	C37-C38-C39-C40
3	A	407	PEE	C17-C18-C19-C20
3	C	406	PEE	C37-C38-C39-C40
3	C	407	PEE	C17-C18-C19-C20
3	B	407	PEE	C37-C38-C39-C40
3	B	408	PEE	C17-C18-C19-C20
3	D	407	PEE	C37-C38-C39-C40
3	D	408	PEE	C17-C18-C19-C20
3	E	407	PEE	C37-C38-C39-C40
3	E	408	PEE	C17-C18-C19-C20
3	A	404	PEE	C31-C30-O3-C3
3	C	404	PEE	C31-C30-O3-C3
3	B	405	PEE	C31-C30-O3-C3
3	D	405	PEE	C31-C30-O3-C3
3	E	405	PEE	C31-C30-O3-C3
3	B	405	PEE	O5-C30-O3-C3
3	A	404	PEE	O5-C30-O3-C3
3	C	404	PEE	O5-C30-O3-C3
3	D	405	PEE	O5-C30-O3-C3
3	E	405	PEE	O5-C30-O3-C3
3	A	408	PEE	C14-C15-C16-C17
3	C	408	PEE	C14-C15-C16-C17
3	B	409	PEE	C14-C15-C16-C17
3	D	409	PEE	C14-C15-C16-C17
3	E	409	PEE	C14-C15-C16-C17
3	A	408	PEE	C16-C17-C18-C19
3	C	408	PEE	C16-C17-C18-C19
3	B	409	PEE	C16-C17-C18-C19
3	D	409	PEE	C16-C17-C18-C19
3	E	409	PEE	C16-C17-C18-C19
3	A	406	PEE	C18-C19-C20-C21
3	C	406	PEE	C18-C19-C20-C21

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Mol	Chain	Res	Type	Atoms
3	B	407	PEE	C18-C19-C20-C21
3	D	407	PEE	C18-C19-C20-C21
3	E	407	PEE	C18-C19-C20-C21
3	A	403	PEE	C11-C10-O2-C2
3	A	405	PEE	C11-C10-O2-C2
3	C	403	PEE	C11-C10-O2-C2
3	C	405	PEE	C11-C10-O2-C2
3	B	404	PEE	C11-C10-O2-C2
3	B	406	PEE	C11-C10-O2-C2
3	D	404	PEE	C11-C10-O2-C2
3	D	406	PEE	C11-C10-O2-C2
3	E	404	PEE	C11-C10-O2-C2
3	E	406	PEE	C11-C10-O2-C2
3	A	403	PEE	O4-C10-O2-C2
3	C	403	PEE	O4-C10-O2-C2
3	B	404	PEE	O4-C10-O2-C2
3	D	404	PEE	O4-C10-O2-C2
3	E	404	PEE	O4-C10-O2-C2
3	A	402	PEE	C11-C12-C13-C14
3	C	402	PEE	C11-C12-C13-C14
3	B	403	PEE	C11-C12-C13-C14
3	D	403	PEE	C11-C12-C13-C14
3	E	403	PEE	C11-C12-C13-C14
3	A	407	PEE	C11-C12-C13-C14
3	C	407	PEE	C11-C12-C13-C14
3	B	408	PEE	C11-C12-C13-C14
3	D	408	PEE	C11-C12-C13-C14
3	E	408	PEE	C11-C12-C13-C14
3	A	403	PEE	C2-C1-O3P-P
3	A	406	PEE	C2-C1-O3P-P
3	C	403	PEE	C2-C1-O3P-P
3	C	406	PEE	C2-C1-O3P-P
3	B	404	PEE	C2-C1-O3P-P
3	B	407	PEE	C2-C1-O3P-P
3	D	404	PEE	C2-C1-O3P-P
3	D	407	PEE	C2-C1-O3P-P
3	E	404	PEE	C2-C1-O3P-P
3	E	407	PEE	C2-C1-O3P-P
3	A	405	PEE	O4-C10-O2-C2
3	C	405	PEE	O4-C10-O2-C2
3	B	406	PEE	O4-C10-O2-C2
3	D	406	PEE	O4-C10-O2-C2

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Mol	Chain	Res	Type	Atoms
3	E	406	PEE	O4-C10-O2-C2
3	A	408	PEE	C1-C2-C3-O3
3	C	408	PEE	C1-C2-C3-O3
3	B	409	PEE	C1-C2-C3-O3
3	D	409	PEE	C1-C2-C3-O3
3	E	409	PEE	C1-C2-C3-O3
3	A	408	PEE	C15-C16-C17-C18
3	A	409	PEE	C15-C16-C17-C18
3	C	408	PEE	C15-C16-C17-C18
3	C	409	PEE	C15-C16-C17-C18
3	B	409	PEE	C15-C16-C17-C18
3	B	410	PEE	C15-C16-C17-C18
3	D	409	PEE	C15-C16-C17-C18
3	D	410	PEE	C15-C16-C17-C18
3	E	409	PEE	C15-C16-C17-C18
3	E	410	PEE	C15-C16-C17-C18
3	A	407	PEE	C18-C19-C20-C21
3	C	407	PEE	C18-C19-C20-C21
3	B	408	PEE	C18-C19-C20-C21
3	E	408	PEE	C18-C19-C20-C21
3	A	408	PEE	C37-C38-C39-C40
3	C	408	PEE	C37-C38-C39-C40
3	B	409	PEE	C37-C38-C39-C40
3	D	409	PEE	C37-C38-C39-C40
3	E	409	PEE	C37-C38-C39-C40
3	D	408	PEE	C18-C19-C20-C21
3	E	409	PEE	C31-C32-C33-C34
3	A	408	PEE	C31-C32-C33-C34
3	C	408	PEE	C31-C32-C33-C34
3	B	409	PEE	C31-C32-C33-C34
3	D	409	PEE	C31-C32-C33-C34
3	A	404	PEE	C37-C38-C39-C40
3	A	406	PEE	C17-C18-C19-C20
3	C	404	PEE	C37-C38-C39-C40
3	C	406	PEE	C17-C18-C19-C20
3	B	405	PEE	C37-C38-C39-C40
3	B	407	PEE	C17-C18-C19-C20
3	D	405	PEE	C37-C38-C39-C40
3	D	407	PEE	C17-C18-C19-C20
3	E	405	PEE	C37-C38-C39-C40
3	E	407	PEE	C17-C18-C19-C20
3	A	406	PEE	O3P-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
3	C	406	PEE	O3P-C1-C2-C3
3	B	407	PEE	O3P-C1-C2-C3
3	D	407	PEE	O3P-C1-C2-C3
3	E	407	PEE	O3P-C1-C2-C3
3	D	403	PEE	C32-C33-C34-C35
3	A	410	PEE	C40-C41-C42-C43
3	B	401	PEE	C40-C41-C42-C43
3	D	401	PEE	C40-C41-C42-C43
3	C	410	PEE	C40-C41-C42-C43
3	E	401	PEE	C40-C41-C42-C43
3	A	402	PEE	C32-C33-C34-C35
3	C	402	PEE	C32-C33-C34-C35
3	B	403	PEE	C32-C33-C34-C35
3	E	403	PEE	C32-C33-C34-C35
3	B	409	PEE	C33-C34-C35-C36
3	A	408	PEE	C33-C34-C35-C36
3	C	408	PEE	C33-C34-C35-C36
3	D	409	PEE	C33-C34-C35-C36
3	E	409	PEE	C33-C34-C35-C36
3	A	403	PEE	O3P-C1-C2-C3
3	C	403	PEE	O3P-C1-C2-C3
3	B	404	PEE	O3P-C1-C2-C3
3	D	404	PEE	O3P-C1-C2-C3
3	E	404	PEE	O3P-C1-C2-C3
3	A	409	PEE	C23-C24-C25-C26
3	C	409	PEE	C23-C24-C25-C26
3	B	410	PEE	C23-C24-C25-C26
3	D	410	PEE	C23-C24-C25-C26
3	E	410	PEE	C23-C24-C25-C26
3	A	407	PEE	C35-C36-C37-C38
3	C	407	PEE	C35-C36-C37-C38
3	B	408	PEE	C35-C36-C37-C38
3	D	408	PEE	C35-C36-C37-C38
3	E	408	PEE	C35-C36-C37-C38
3	A	404	PEE	C5-C4-O4P-P
3	C	404	PEE	C5-C4-O4P-P
3	B	405	PEE	C5-C4-O4P-P
3	D	405	PEE	C5-C4-O4P-P
3	E	405	PEE	C5-C4-O4P-P
3	C	410	PEE	C14-C15-C16-C17
3	D	401	PEE	C14-C15-C16-C17
3	A	410	PEE	C14-C15-C16-C17

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Mol	Chain	Res	Type	Atoms
3	B	401	PEE	C14-C15-C16-C17
3	E	401	PEE	C14-C15-C16-C17
3	A	405	PEE	C16-C17-C18-C19
3	C	405	PEE	C16-C17-C18-C19
3	B	406	PEE	C16-C17-C18-C19
3	D	406	PEE	C16-C17-C18-C19
3	E	406	PEE	C16-C17-C18-C19
3	A	406	PEE	O3P-C1-C2-O2
3	C	406	PEE	O3P-C1-C2-O2
3	B	407	PEE	O3P-C1-C2-O2
3	D	407	PEE	O3P-C1-C2-O2
3	E	407	PEE	O3P-C1-C2-O2
3	B	405	PEE	O2-C2-C3-O3
3	C	404	PEE	C2-C3-O3-C30
3	B	405	PEE	C2-C3-O3-C30
3	E	405	PEE	C2-C3-O3-C30
3	A	404	PEE	C4-O4P-P-O3P
3	A	406	PEE	C1-O3P-P-O1P
3	A	406	PEE	C4-O4P-P-O1P
3	C	404	PEE	C4-O4P-P-O3P
3	C	406	PEE	C1-O3P-P-O1P
3	C	406	PEE	C4-O4P-P-O1P
3	B	405	PEE	C4-O4P-P-O3P
3	B	407	PEE	C1-O3P-P-O1P
3	B	407	PEE	C4-O4P-P-O1P
3	D	405	PEE	C4-O4P-P-O3P
3	D	407	PEE	C1-O3P-P-O1P
3	D	407	PEE	C4-O4P-P-O1P
3	E	405	PEE	C4-O4P-P-O3P
3	E	407	PEE	C1-O3P-P-O1P
3	E	407	PEE	C4-O4P-P-O1P
3	A	404	PEE	C2-C3-O3-C30
3	D	405	PEE	C2-C3-O3-C30
3	A	408	PEE	C12-C13-C14-C15
3	C	408	PEE	C12-C13-C14-C15
3	D	409	PEE	C12-C13-C14-C15
3	B	409	PEE	C12-C13-C14-C15
3	E	409	PEE	C12-C13-C14-C15
3	A	402	PEE	C3-C2-O2-C10
3	C	402	PEE	C3-C2-O2-C10
3	B	403	PEE	C3-C2-O2-C10
3	D	403	PEE	C3-C2-O2-C10

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Mol	Chain	Res	Type	Atoms
3	E	403	PEE	C3-C2-O2-C10
3	A	404	PEE	O2-C2-C3-O3
3	C	404	PEE	O2-C2-C3-O3
3	D	405	PEE	O2-C2-C3-O3
3	E	405	PEE	O2-C2-C3-O3
3	A	410	PEE	C18-C19-C20-C21
3	C	410	PEE	C18-C19-C20-C21
3	B	401	PEE	C18-C19-C20-C21
3	D	401	PEE	C18-C19-C20-C21
3	E	401	PEE	C18-C19-C20-C21
3	A	404	PEE	C30-C31-C32-C33
3	B	405	PEE	C30-C31-C32-C33
3	D	405	PEE	C30-C31-C32-C33
3	E	405	PEE	C30-C31-C32-C33
3	C	404	PEE	C30-C31-C32-C33
3	A	402	PEE	C38-C39-C40-C41
3	A	407	PEE	C16-C17-C18-C19
3	C	402	PEE	C38-C39-C40-C41
3	E	403	PEE	C38-C39-C40-C41
3	A	410	PEE	C32-C33-C34-C35
3	B	401	PEE	C32-C33-C34-C35
3	E	401	PEE	C32-C33-C34-C35
3	C	406	PEE	C42-C43-C44-C45
3	D	407	PEE	C42-C43-C44-C45
3	A	406	PEE	C42-C43-C44-C45
3	B	407	PEE	C42-C43-C44-C45
3	E	407	PEE	C42-C43-C44-C45
3	C	410	PEE	C32-C33-C34-C35
3	D	401	PEE	C32-C33-C34-C35
3	A	407	PEE	C37-C38-C39-C40
3	C	407	PEE	C37-C38-C39-C40
3	B	408	PEE	C37-C38-C39-C40
3	D	408	PEE	C37-C38-C39-C40
3	E	408	PEE	C37-C38-C39-C40
3	A	405	PEE	C14-C15-C16-C17
3	D	406	PEE	C14-C15-C16-C17
3	E	406	PEE	C14-C15-C16-C17
3	C	407	PEE	C16-C17-C18-C19
3	B	403	PEE	C38-C39-C40-C41
3	B	408	PEE	C16-C17-C18-C19
3	D	403	PEE	C38-C39-C40-C41
3	D	408	PEE	C16-C17-C18-C19

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Mol	Chain	Res	Type	Atoms
3	E	408	PEE	C16-C17-C18-C19
3	C	405	PEE	C14-C15-C16-C17
3	B	406	PEE	C14-C15-C16-C17
3	A	402	PEE	C1-C2-O2-C10
3	C	402	PEE	C1-C2-O2-C10
3	B	403	PEE	C1-C2-O2-C10
3	D	403	PEE	C1-C2-O2-C10
3	E	403	PEE	C1-C2-O2-C10
3	C	410	PEE	C38-C39-C40-C41
3	B	401	PEE	C38-C39-C40-C41
3	D	401	PEE	C38-C39-C40-C41
3	E	401	PEE	C38-C39-C40-C41
3	A	410	PEE	C38-C39-C40-C41
3	A	410	PEE	C36-C37-C38-C39
3	C	410	PEE	C36-C37-C38-C39
3	B	401	PEE	C36-C37-C38-C39
3	D	401	PEE	C36-C37-C38-C39
3	E	401	PEE	C36-C37-C38-C39
3	A	410	PEE	C16-C17-C18-C19
3	C	410	PEE	C16-C17-C18-C19
3	B	401	PEE	C16-C17-C18-C19
3	D	401	PEE	C16-C17-C18-C19
3	E	401	PEE	C16-C17-C18-C19
3	A	408	PEE	O3P-C1-C2-C3
3	C	408	PEE	O3P-C1-C2-C3
3	B	409	PEE	O3P-C1-C2-C3
3	D	409	PEE	O3P-C1-C2-C3
3	E	409	PEE	O3P-C1-C2-C3
3	A	404	PEE	C18-C19-C20-C21
3	A	404	PEE	C38-C39-C40-C41
3	C	404	PEE	C18-C19-C20-C21
3	B	405	PEE	C18-C19-C20-C21
3	B	405	PEE	C38-C39-C40-C41
3	D	405	PEE	C18-C19-C20-C21
3	E	405	PEE	C18-C19-C20-C21
3	E	405	PEE	C38-C39-C40-C41
3	C	404	PEE	C38-C39-C40-C41
3	D	405	PEE	C38-C39-C40-C41
3	A	406	PEE	C1-C2-O2-C10
3	C	406	PEE	C1-C2-O2-C10
3	B	407	PEE	C1-C2-O2-C10
3	D	407	PEE	C1-C2-O2-C10

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Mol	Chain	Res	Type	Atoms
3	E	407	PEE	C1-C2-O2-C10
3	A	406	PEE	C36-C37-C38-C39
3	C	406	PEE	C36-C37-C38-C39
3	B	407	PEE	C36-C37-C38-C39
3	D	407	PEE	C36-C37-C38-C39
3	E	407	PEE	C36-C37-C38-C39
3	B	410	PEE	C13-C14-C15-C16
3	A	409	PEE	C13-C14-C15-C16
3	C	409	PEE	C13-C14-C15-C16
3	E	410	PEE	C13-C14-C15-C16
3	D	410	PEE	C13-C14-C15-C16
3	A	404	PEE	C16-C17-C18-C19
3	A	404	PEE	C36-C37-C38-C39
3	A	406	PEE	C38-C39-C40-C41
3	A	408	PEE	C18-C19-C20-C21
3	A	408	PEE	C38-C39-C40-C41
3	C	404	PEE	C16-C17-C18-C19
3	C	404	PEE	C36-C37-C38-C39
3	C	406	PEE	C38-C39-C40-C41
3	C	408	PEE	C18-C19-C20-C21
3	C	408	PEE	C38-C39-C40-C41
3	B	405	PEE	C16-C17-C18-C19
3	B	405	PEE	C36-C37-C38-C39
3	B	407	PEE	C38-C39-C40-C41
3	B	409	PEE	C18-C19-C20-C21
3	B	409	PEE	C38-C39-C40-C41
3	D	405	PEE	C16-C17-C18-C19
3	D	405	PEE	C36-C37-C38-C39
3	D	407	PEE	C38-C39-C40-C41
3	D	409	PEE	C18-C19-C20-C21
3	D	409	PEE	C38-C39-C40-C41
3	E	405	PEE	C16-C17-C18-C19
3	E	405	PEE	C36-C37-C38-C39
3	E	407	PEE	C38-C39-C40-C41
3	E	409	PEE	C18-C19-C20-C21
3	E	409	PEE	C38-C39-C40-C41
3	E	404	PEE	C12-C13-C14-C15
3	A	407	PEE	C15-C16-C17-C18
3	C	407	PEE	C15-C16-C17-C18
3	B	408	PEE	C15-C16-C17-C18
3	D	408	PEE	C15-C16-C17-C18
3	E	408	PEE	C15-C16-C17-C18

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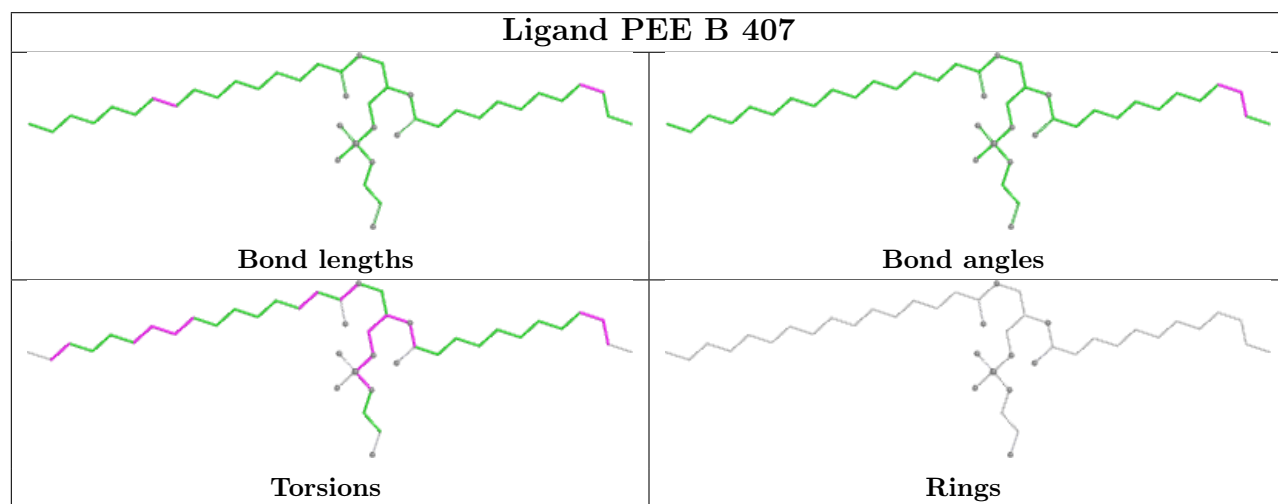
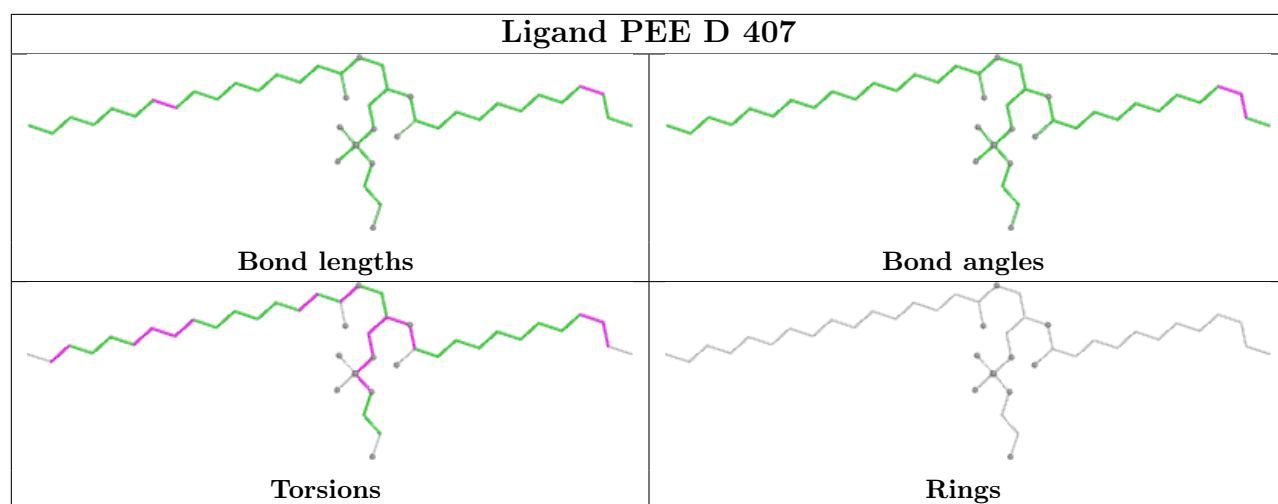
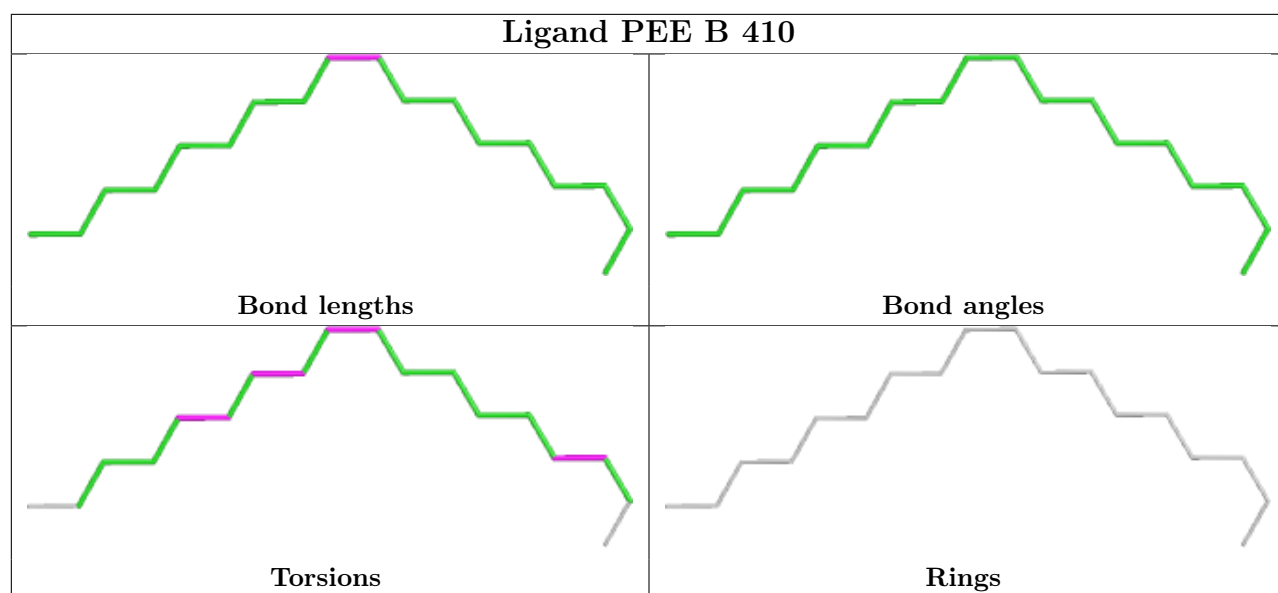
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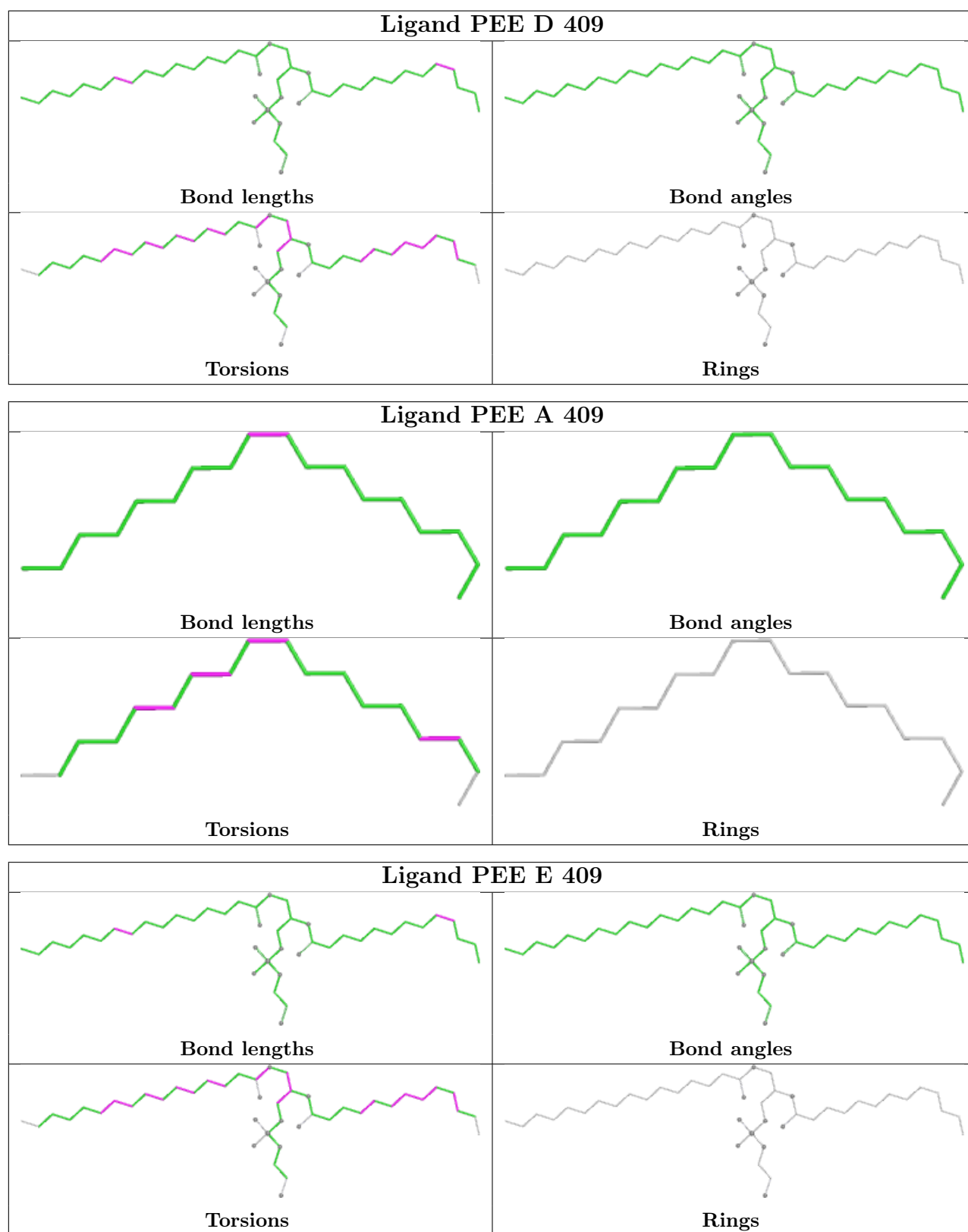
Mol	Chain	Res	Type	Atoms
3	A	403	PEE	C12-C13-C14-C15
3	B	404	PEE	C12-C13-C14-C15
3	D	404	PEE	C12-C13-C14-C15
3	C	403	PEE	C12-C13-C14-C15
3	B	401	PEE	C12-C13-C14-C15
3	D	401	PEE	C12-C13-C14-C15
3	C	410	PEE	C12-C13-C14-C15
3	A	410	PEE	C12-C13-C14-C15
3	E	401	PEE	C12-C13-C14-C15
3	A	410	PEE	O2-C2-C3-O3
3	C	410	PEE	O2-C2-C3-O3
3	B	401	PEE	O2-C2-C3-O3
3	D	401	PEE	O2-C2-C3-O3
3	E	401	PEE	O2-C2-C3-O3
3	A	408	PEE	C35-C36-C37-C38
3	C	408	PEE	C35-C36-C37-C38
3	B	409	PEE	C35-C36-C37-C38
3	D	409	PEE	C35-C36-C37-C38
3	E	409	PEE	C35-C36-C37-C38

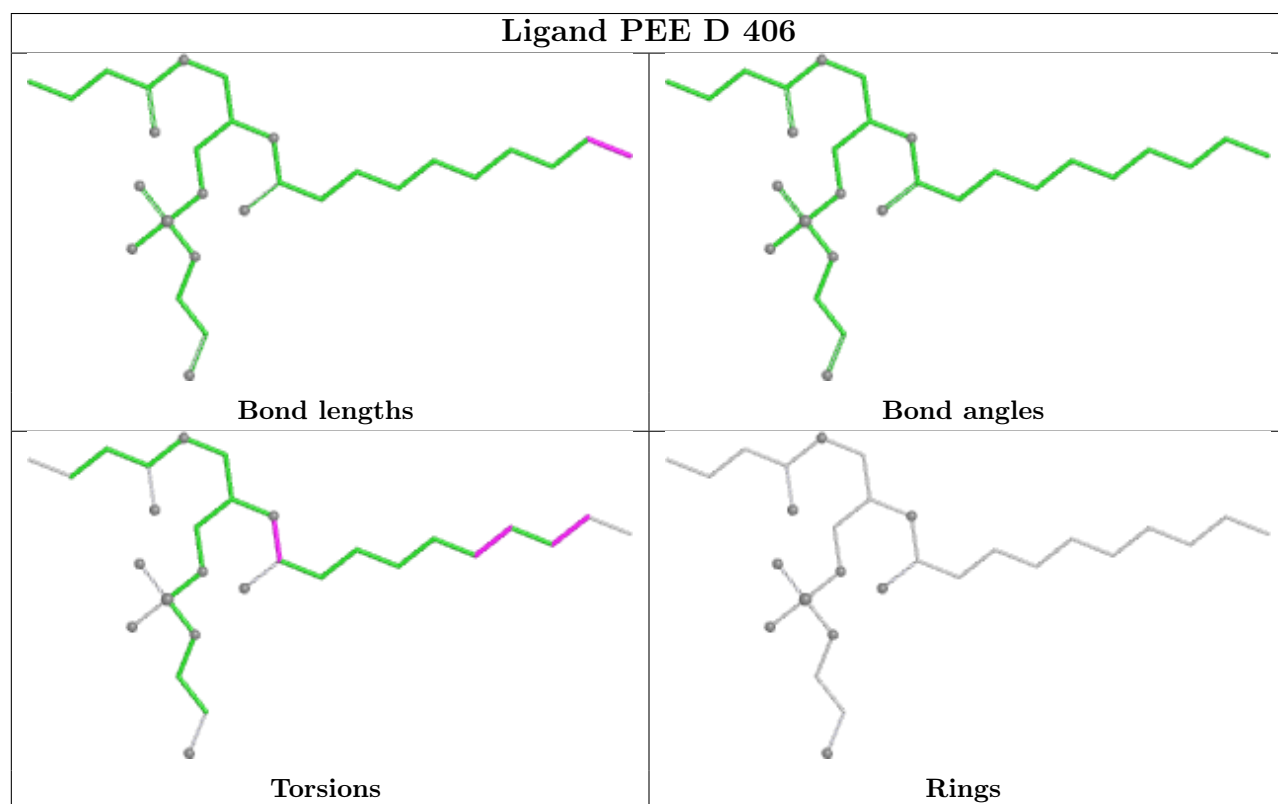
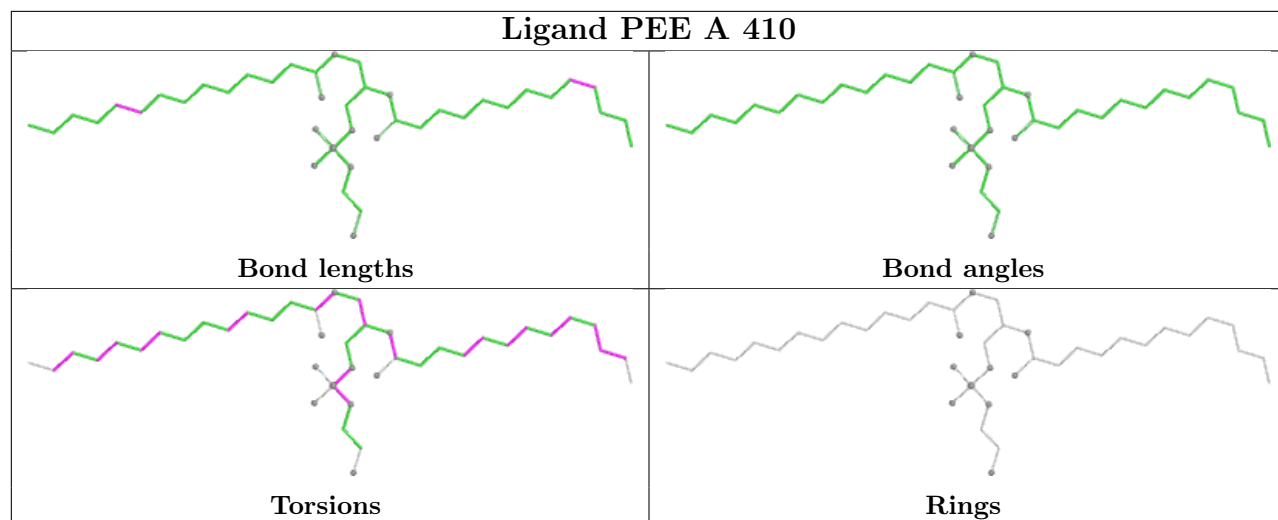
There are no ring outliers.

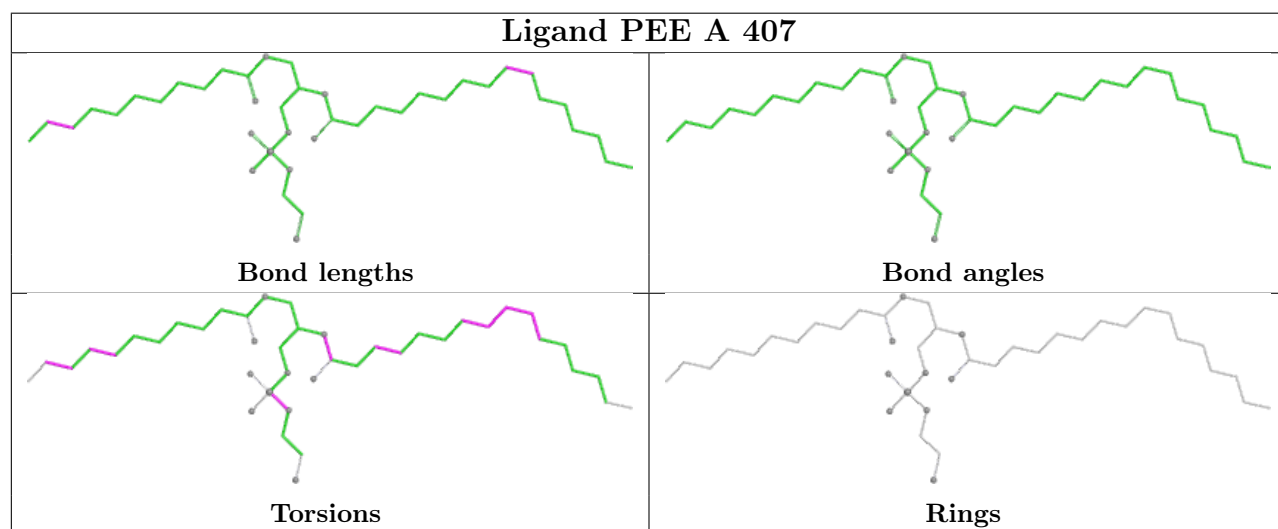
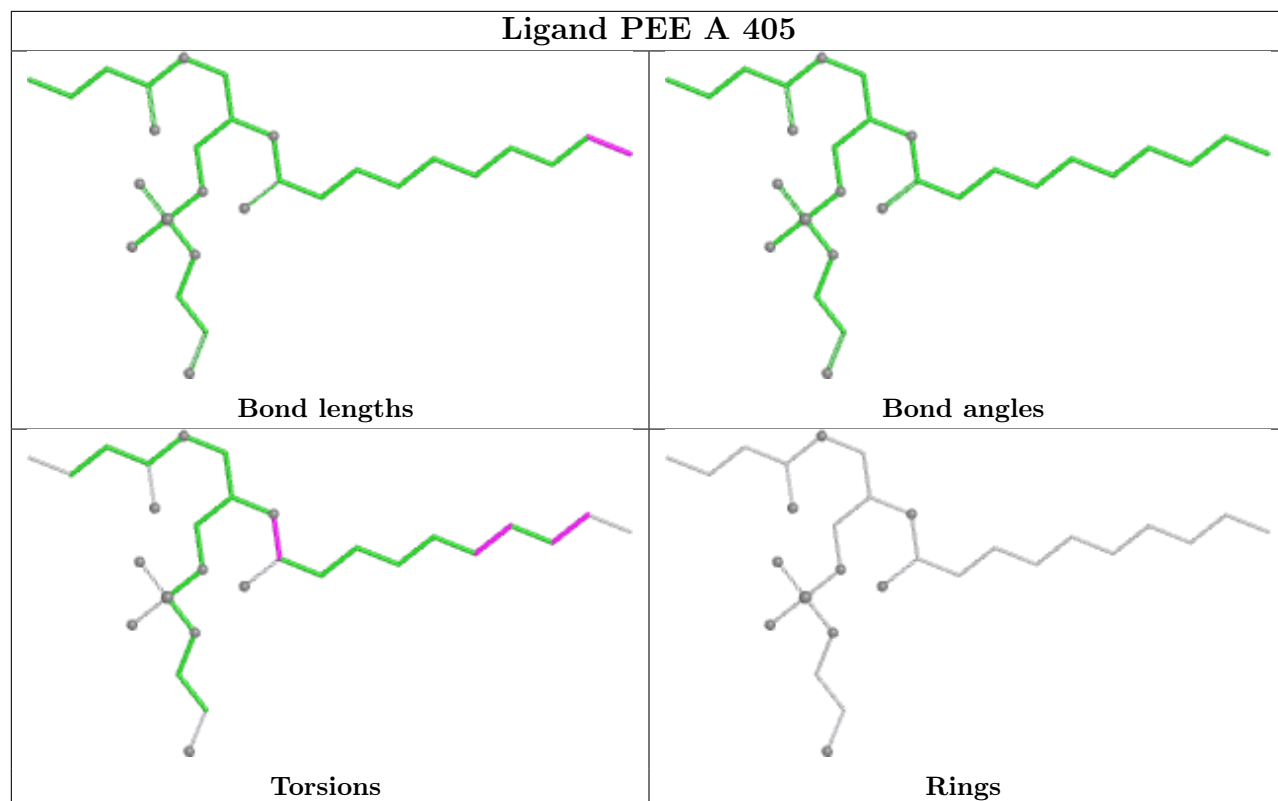
No monomer is involved in short contacts.

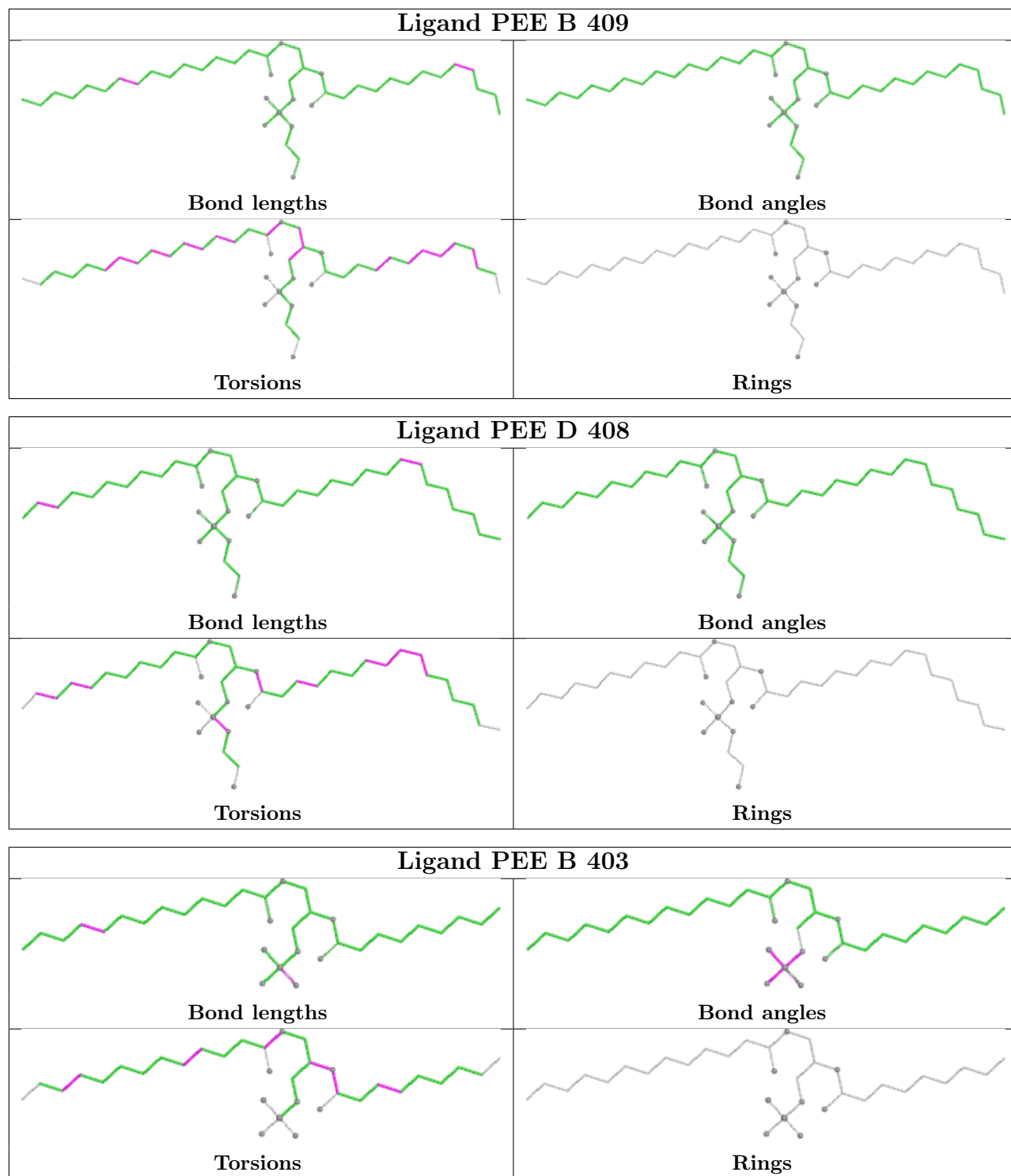
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 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.

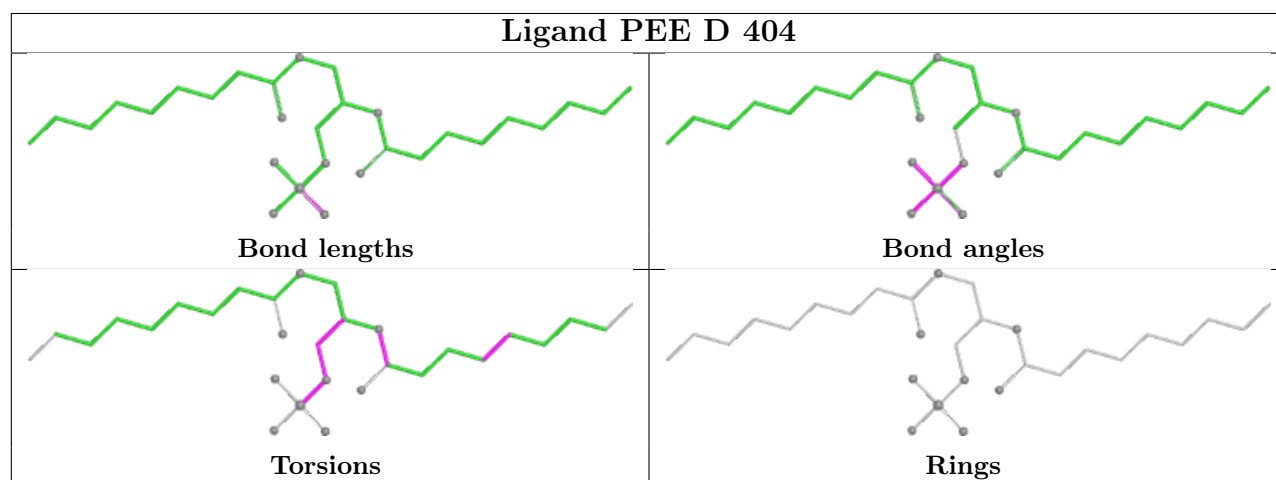
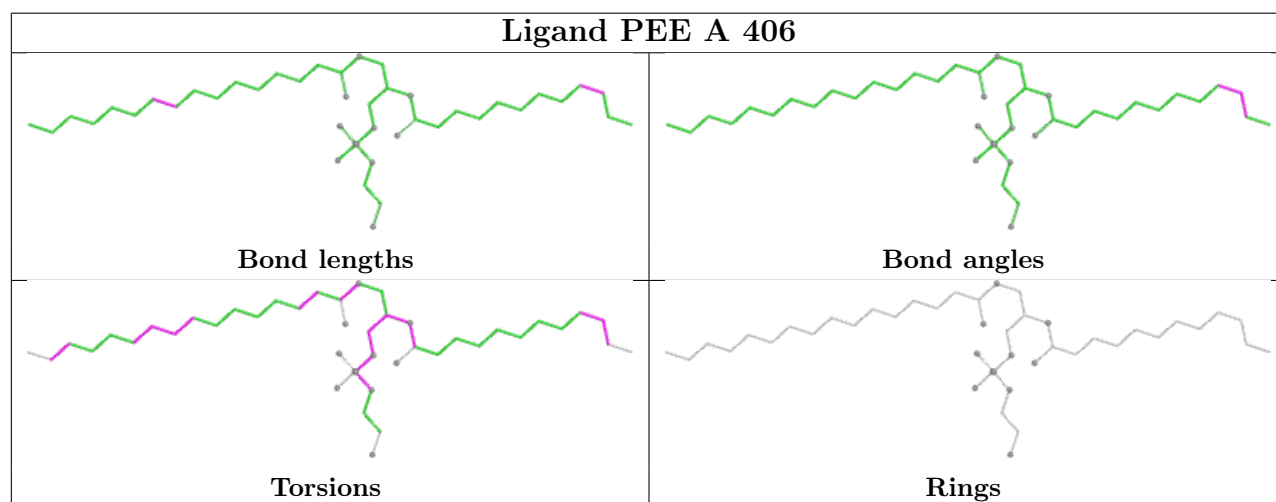
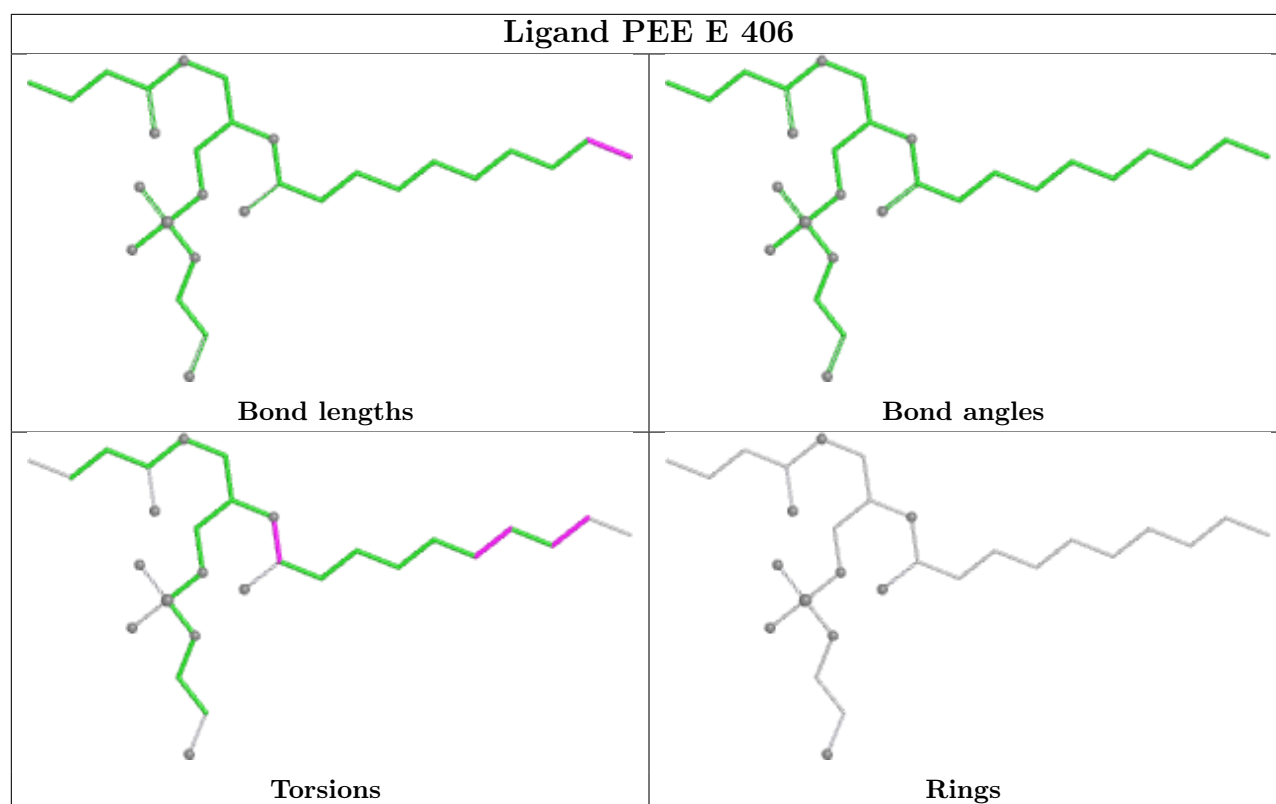


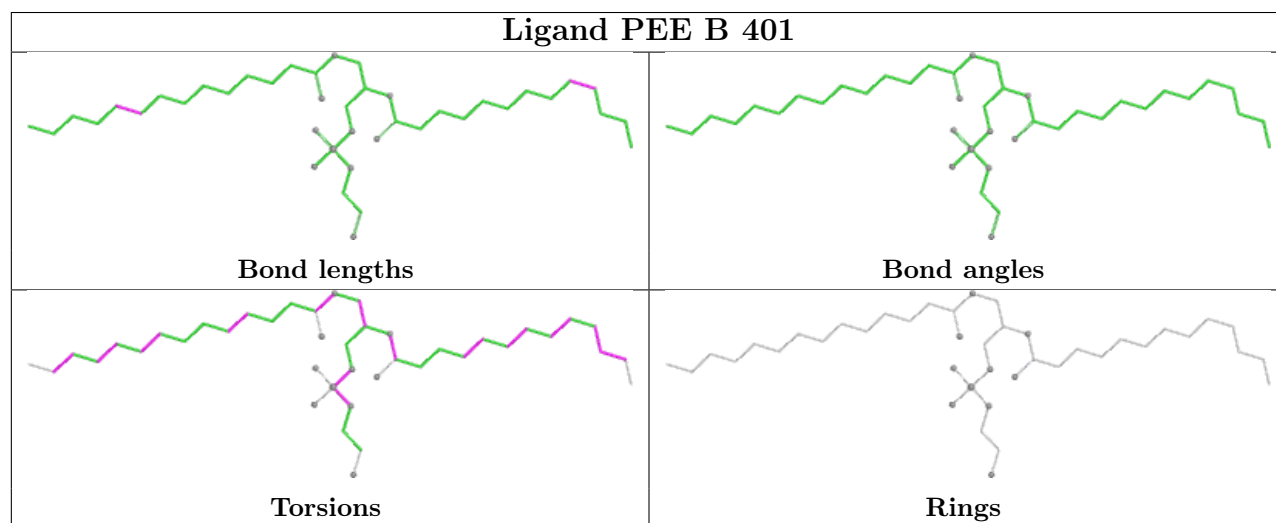
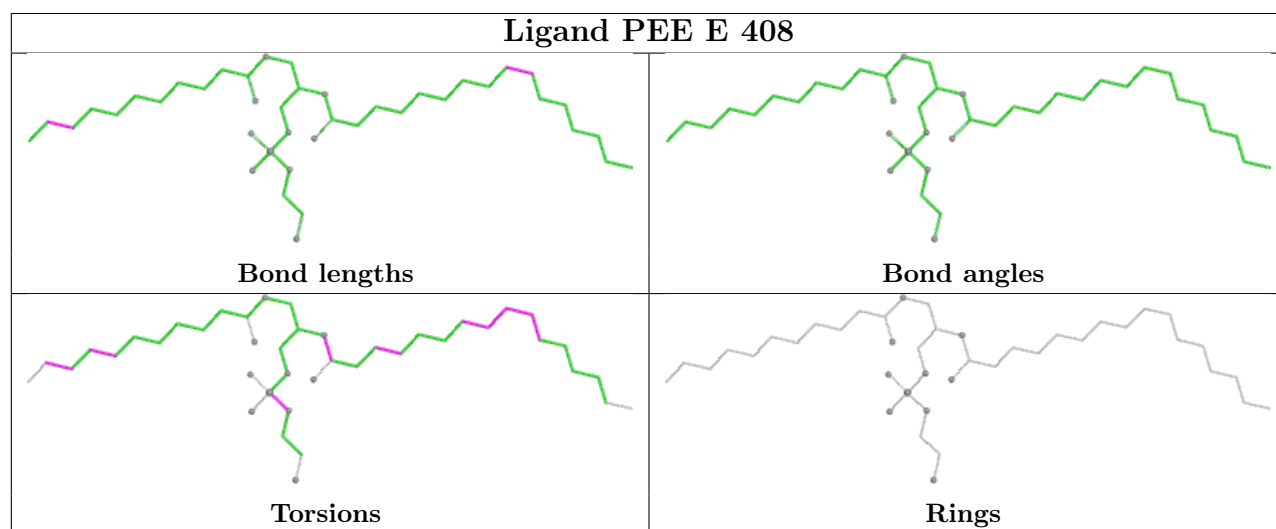
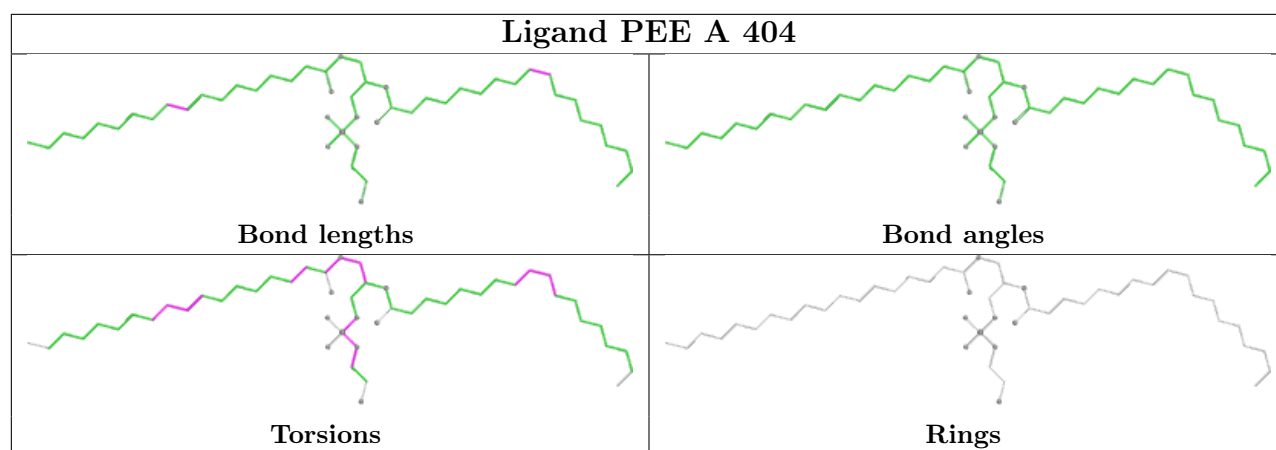


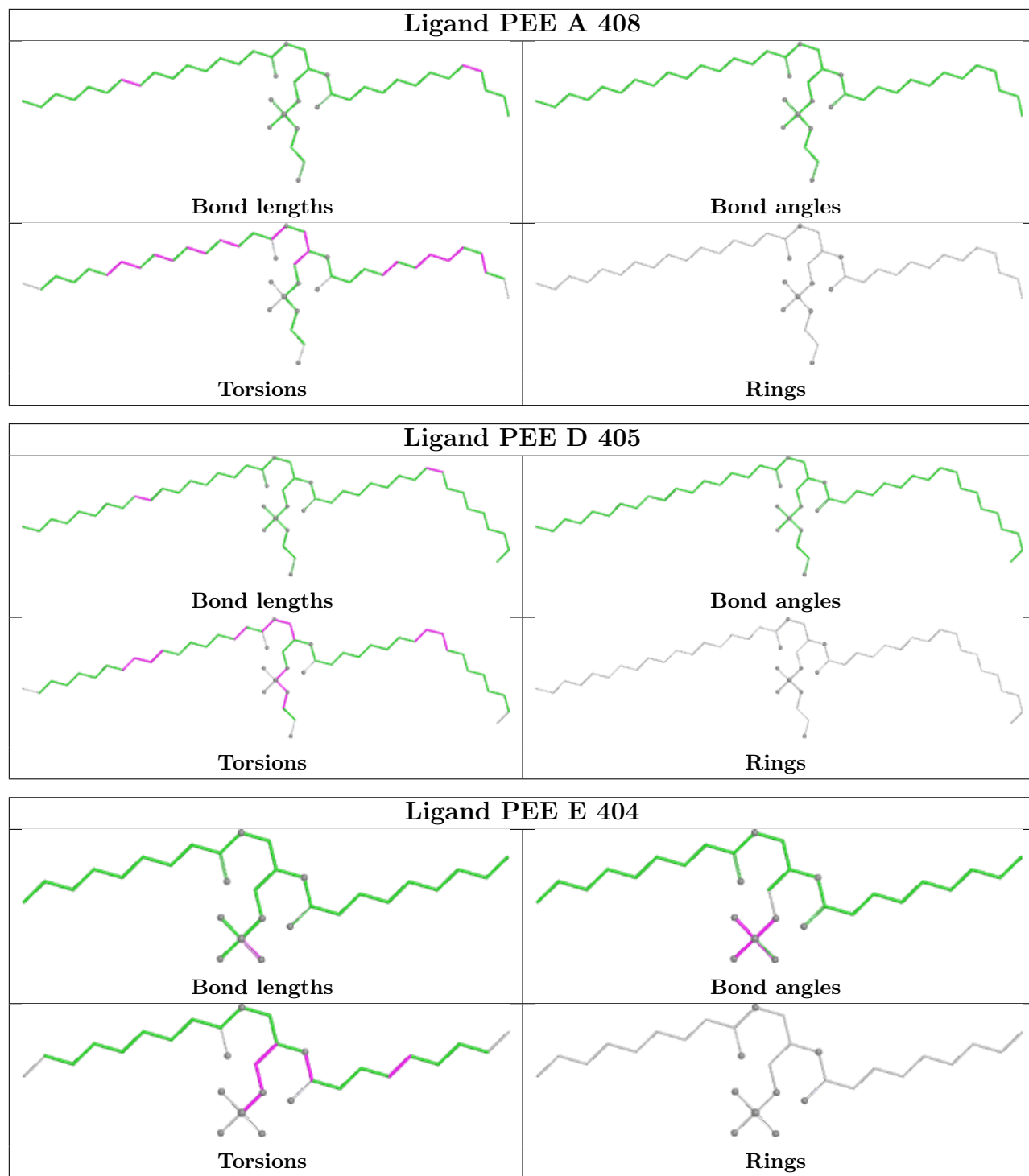


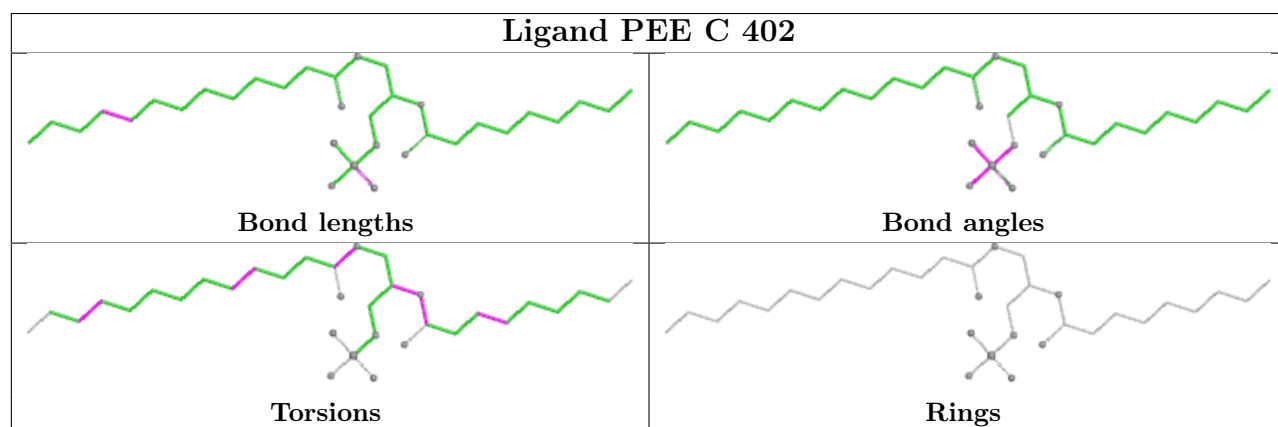
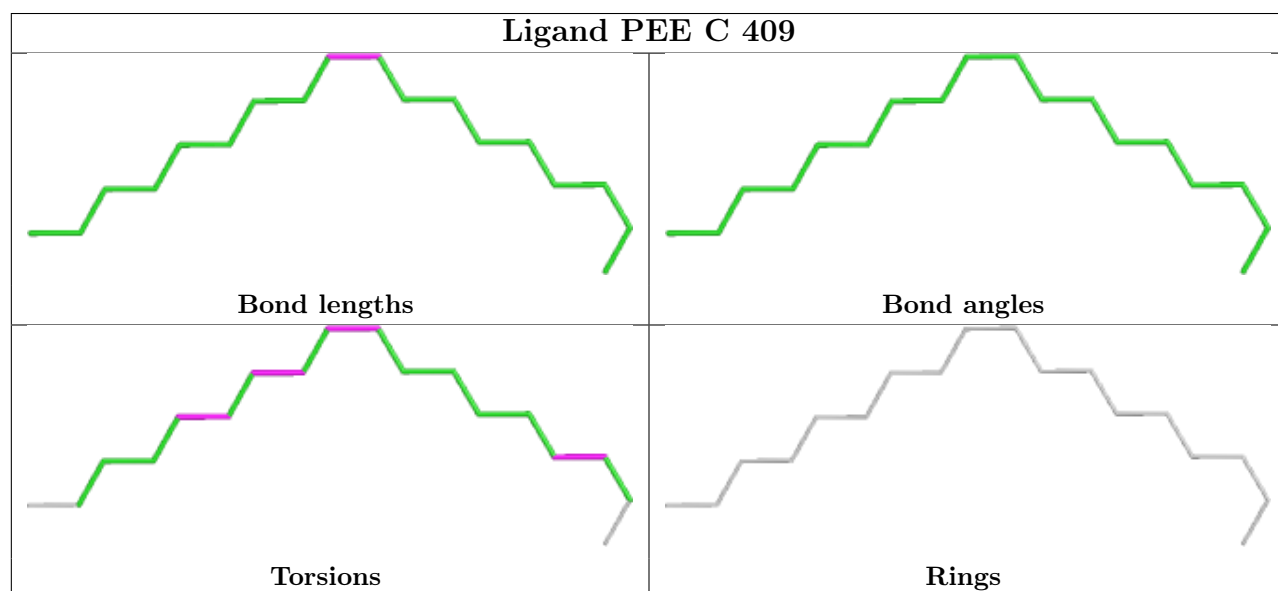
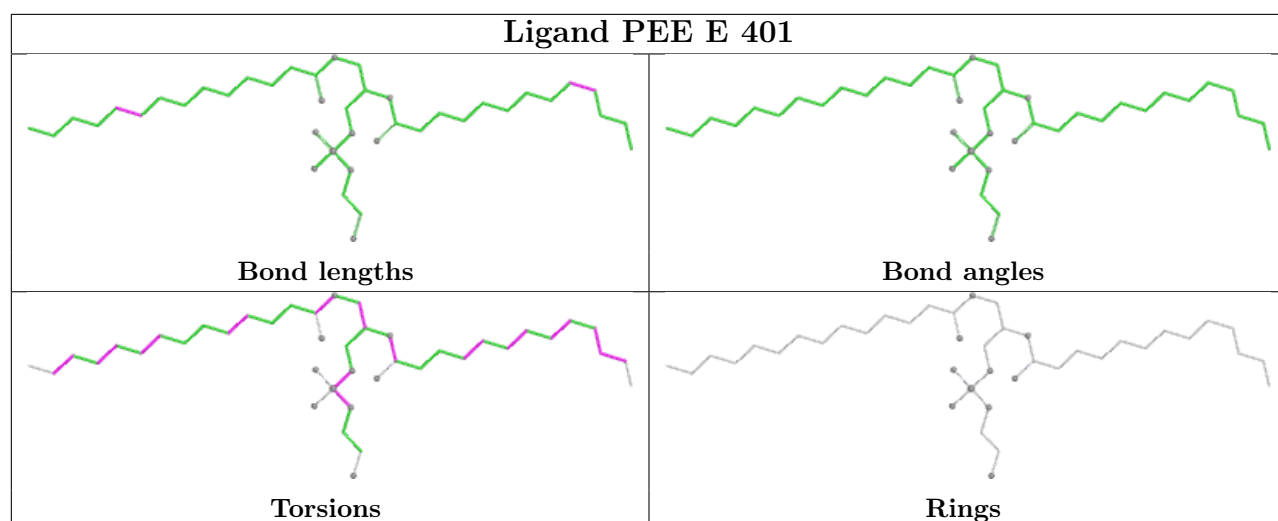


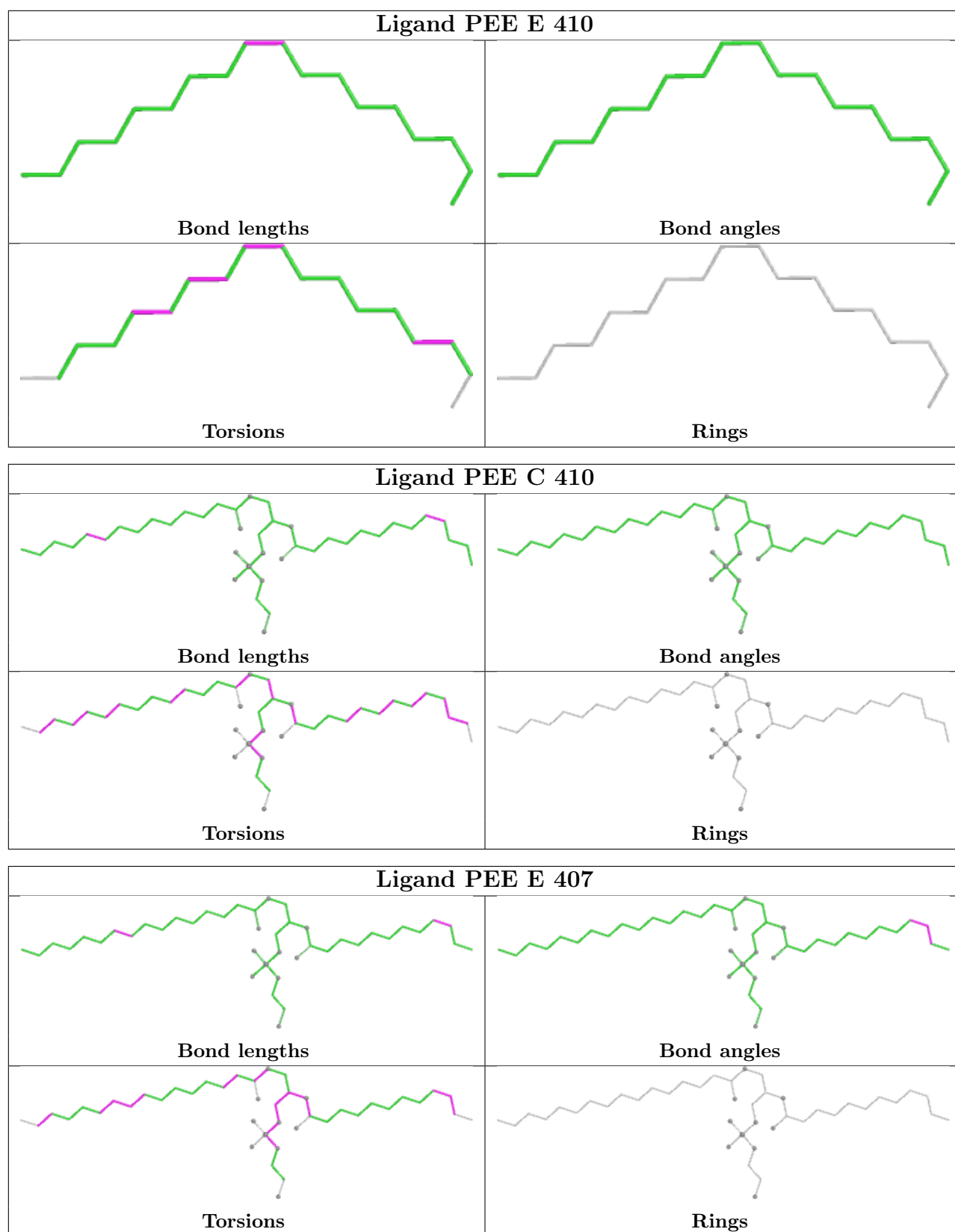


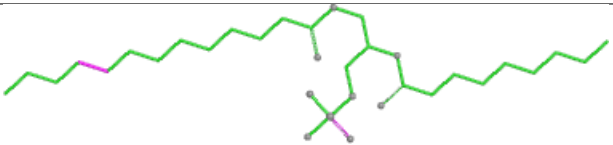
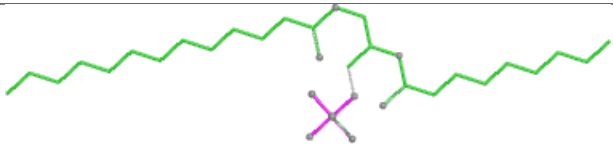
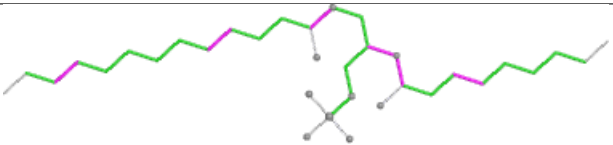
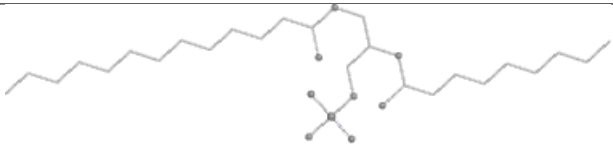


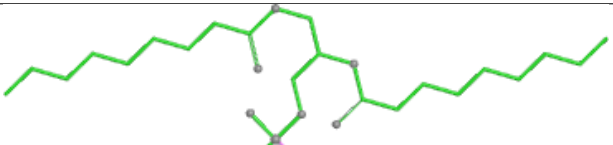
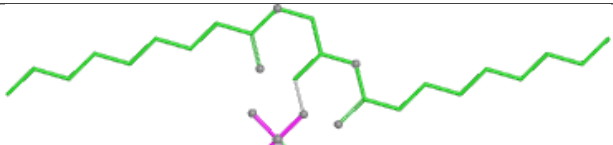
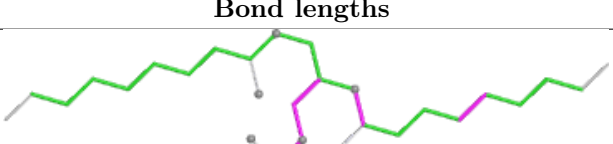
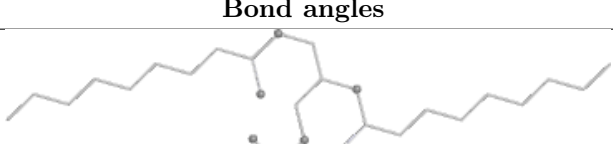


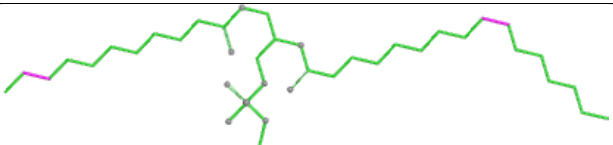
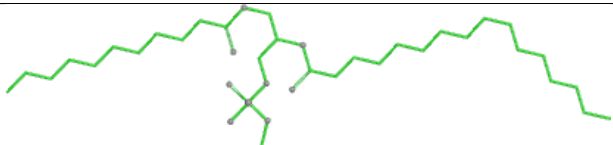
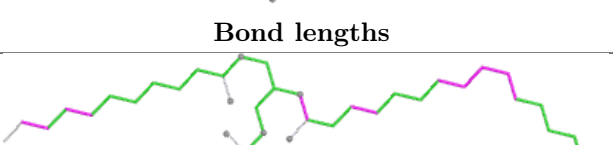
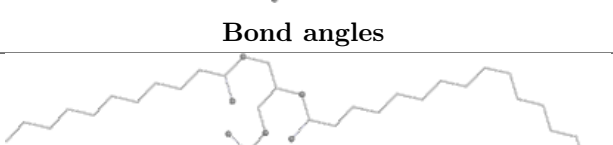


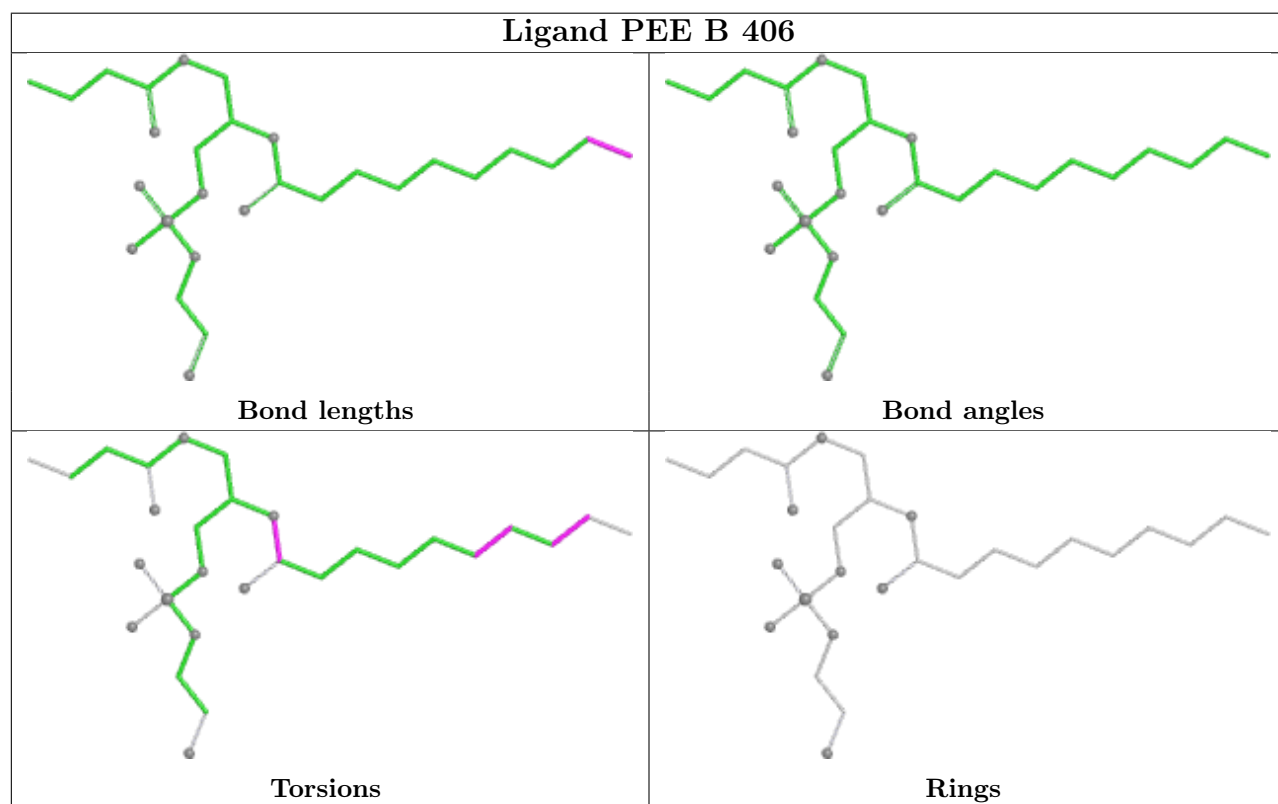
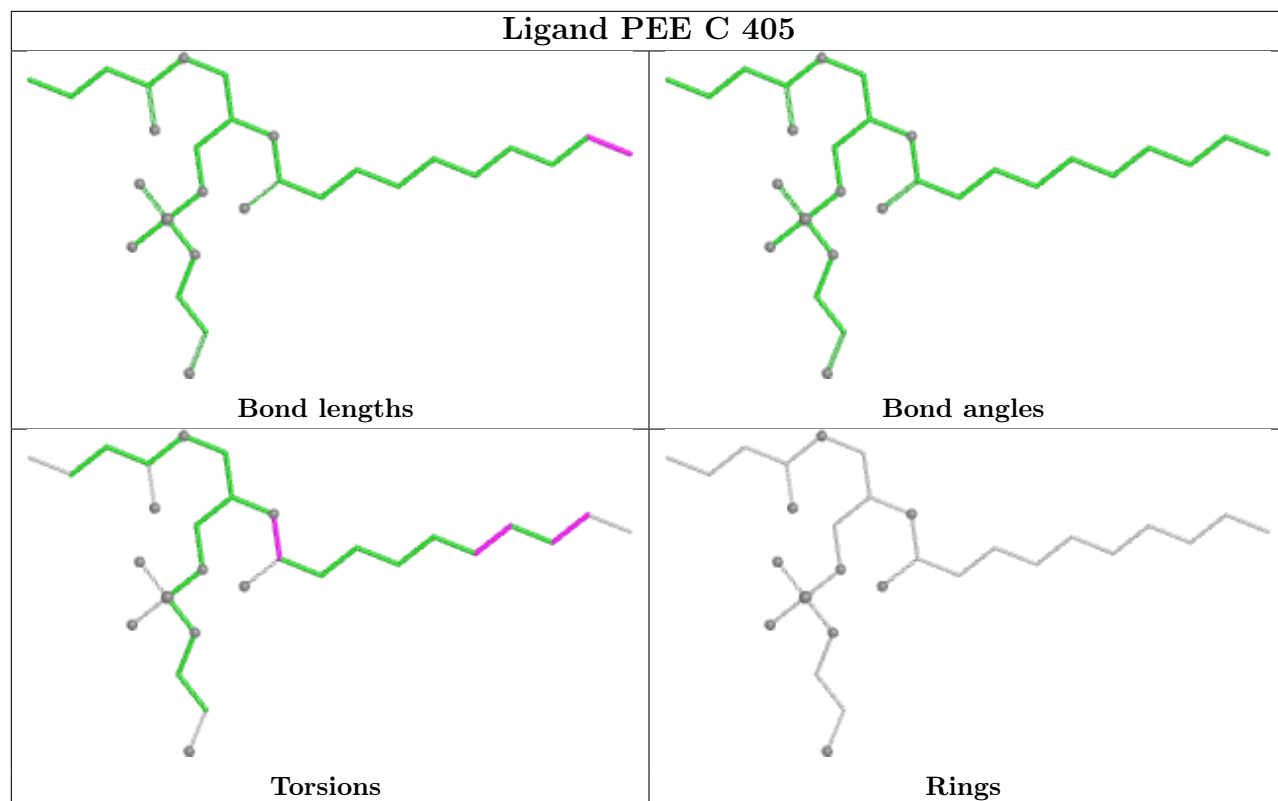


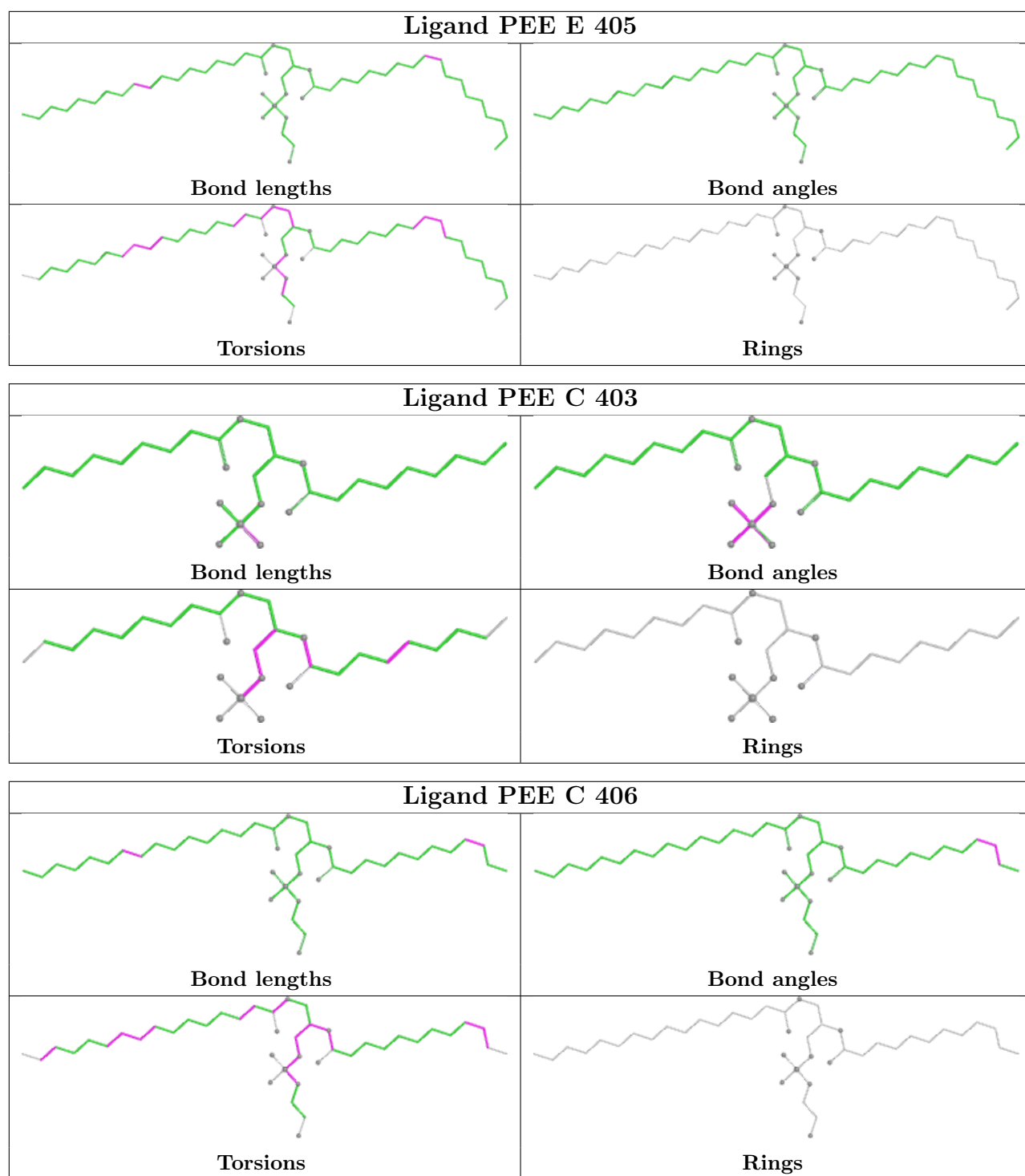


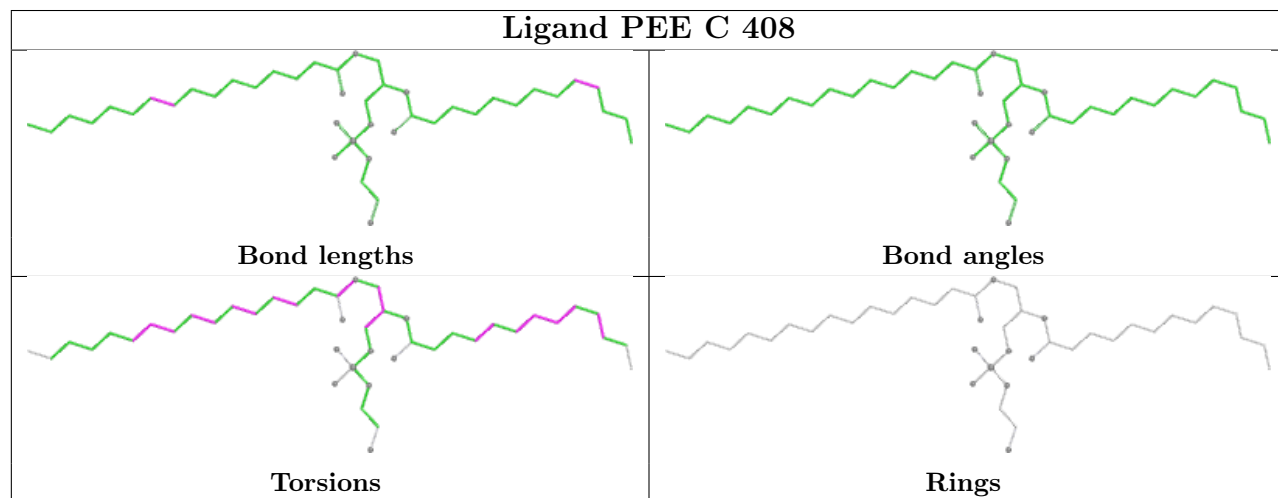
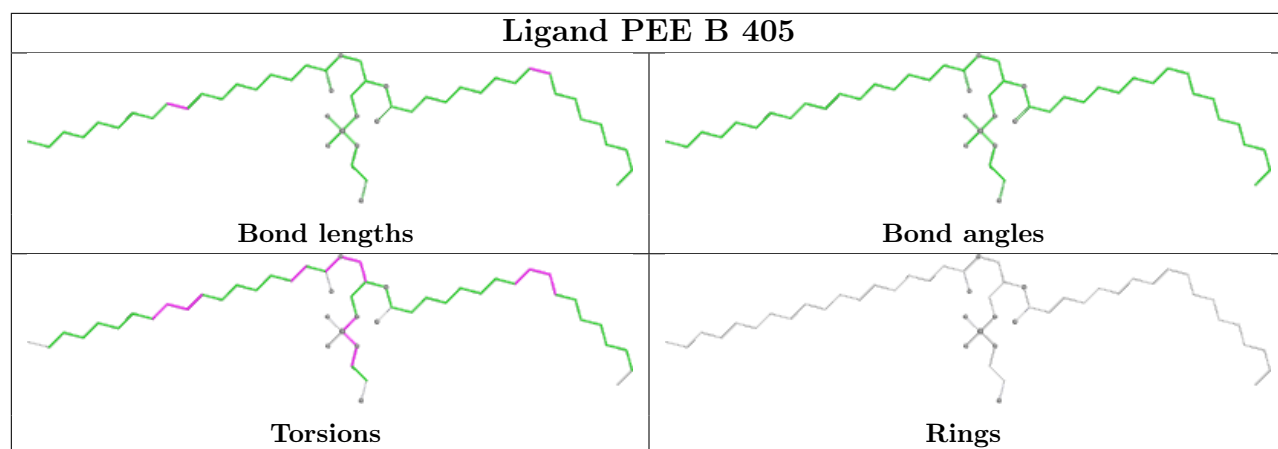
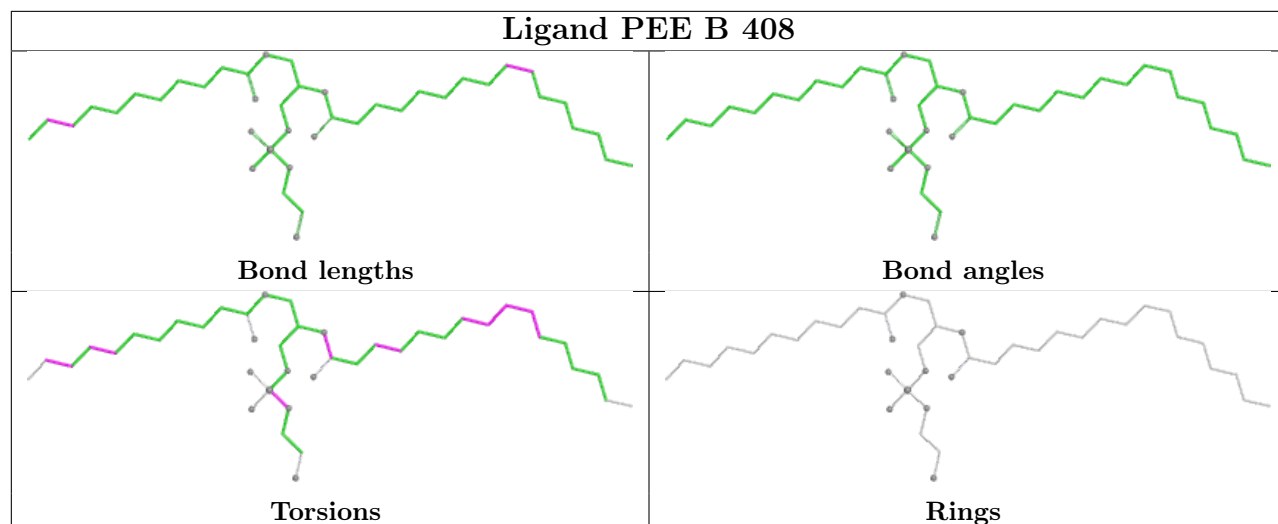
Ligand PEE D 403	
	
Bond lengths	Bond angles
	
Torsions	Rings

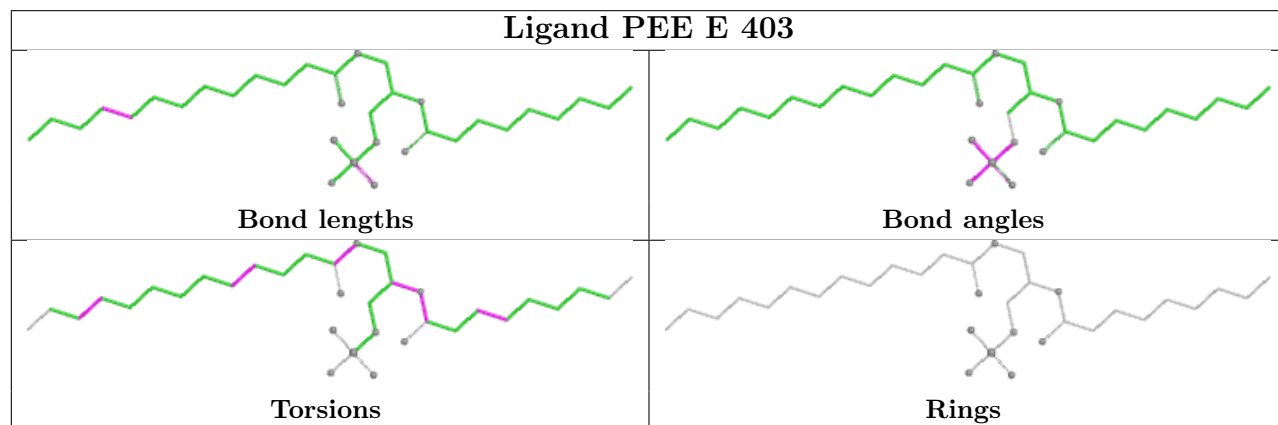
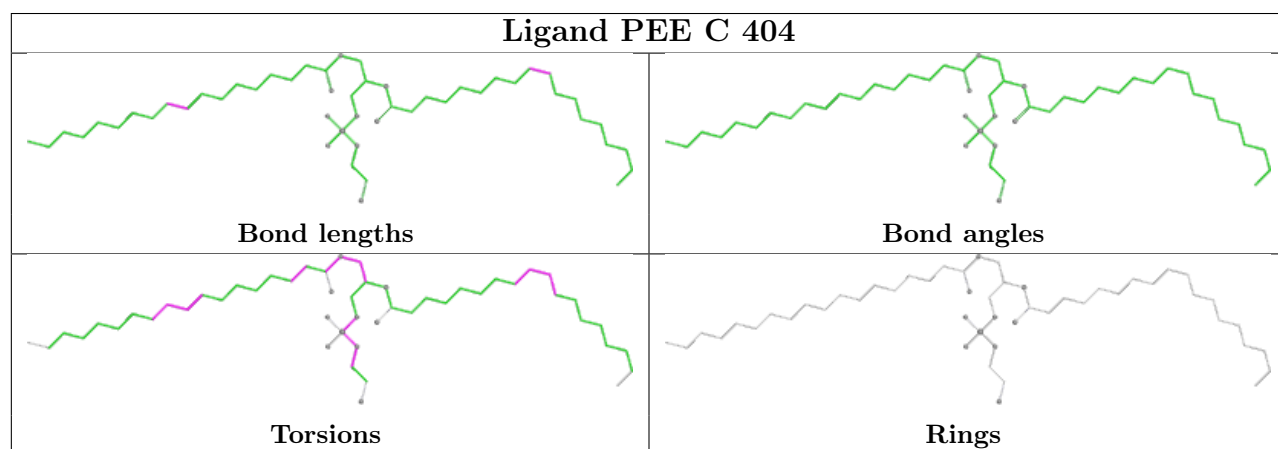
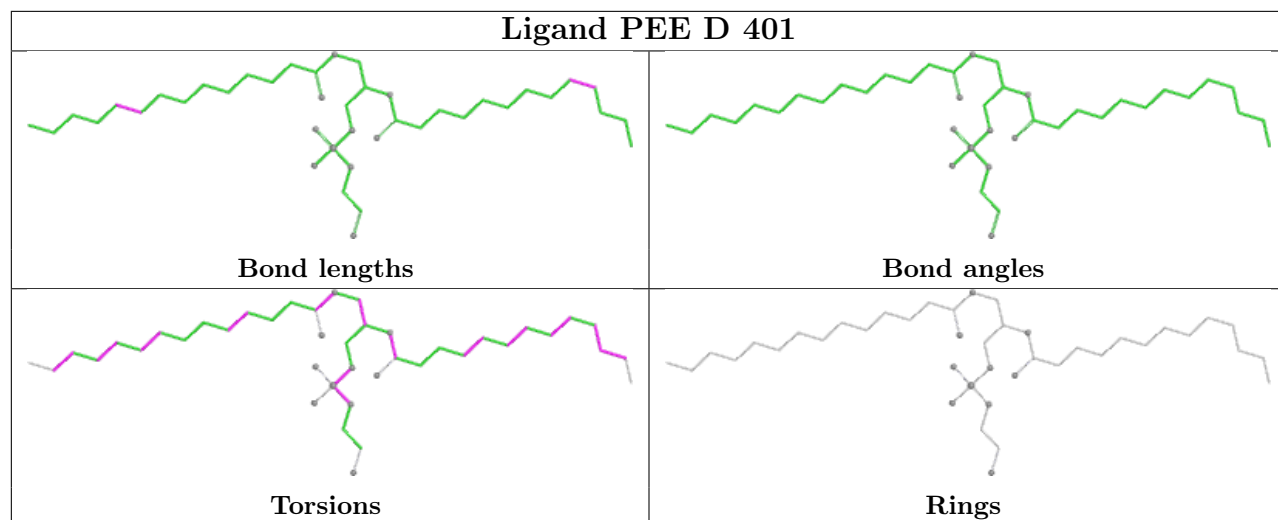
Ligand PEE A 403	
	
Bond lengths	Bond angles
	
Torsions	Rings

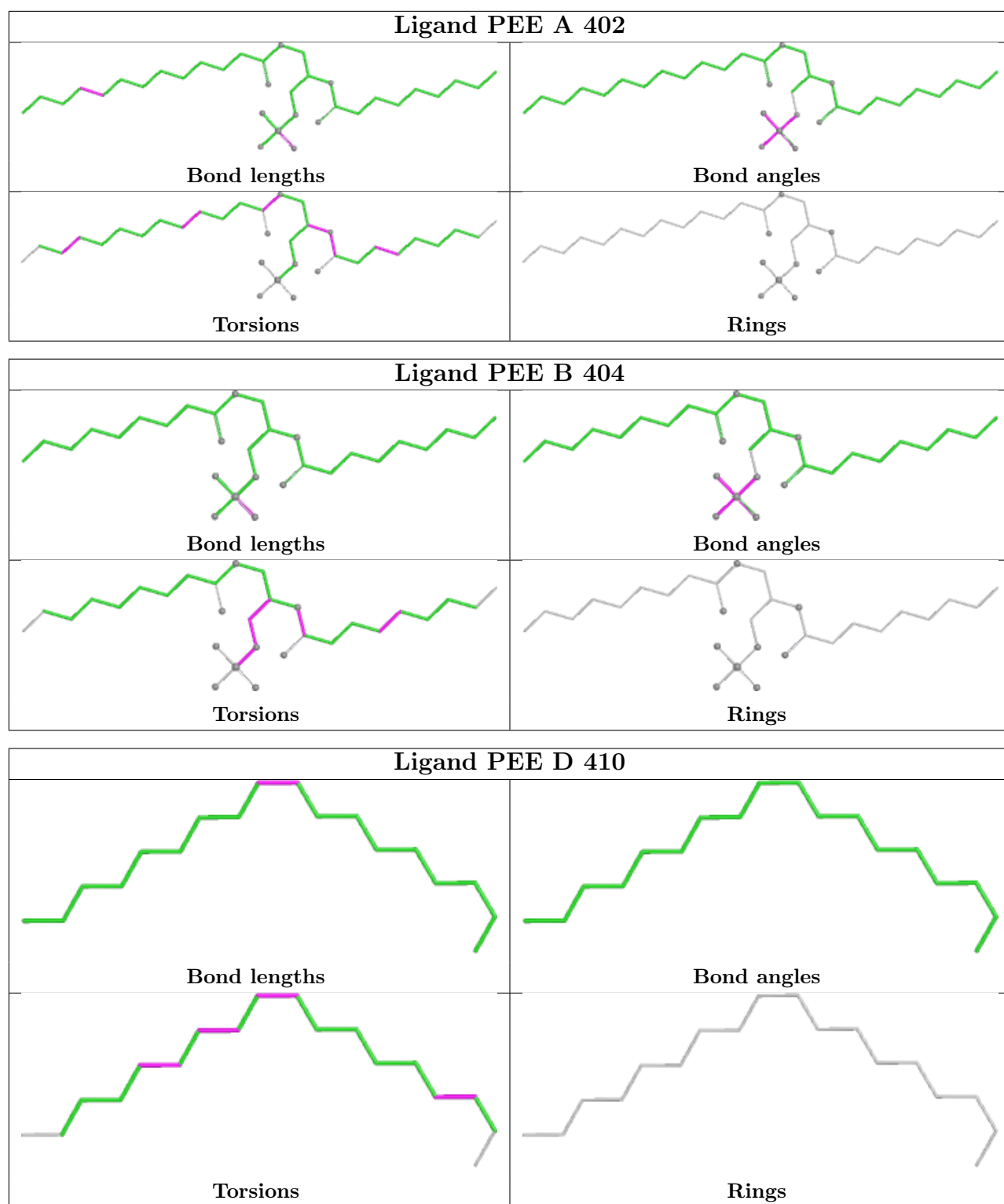
Ligand PEE C 407	
	
Bond lengths	Bond angles
	
Torsions	Rings











4.7 Other polymers [i](#)

There are no such residues in this entry.

4.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

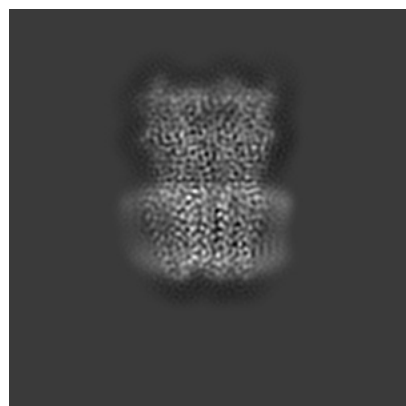
5 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-36339. These allow visual inspection of the internal detail of the map and identification of artifacts.

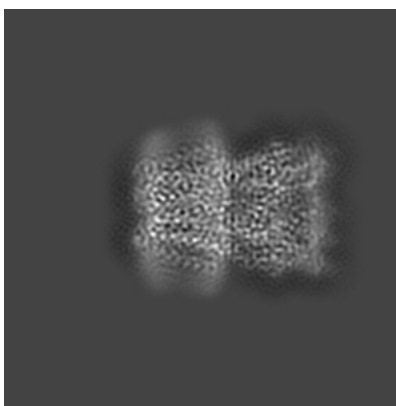
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

5.1 Orthogonal projections [i](#)

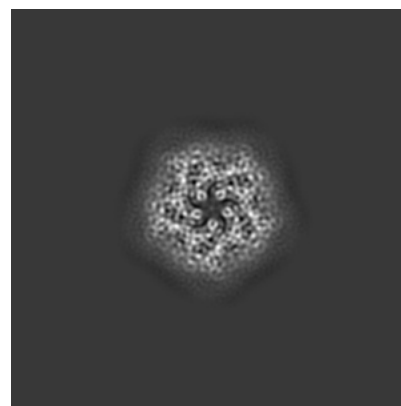
5.1.1 Primary map



X

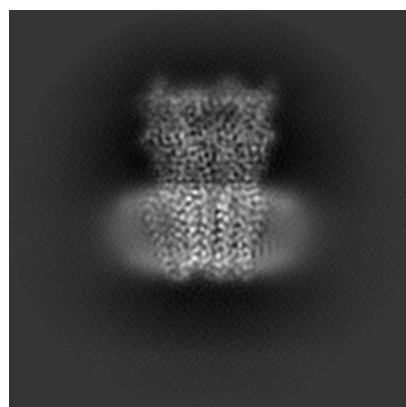


Y

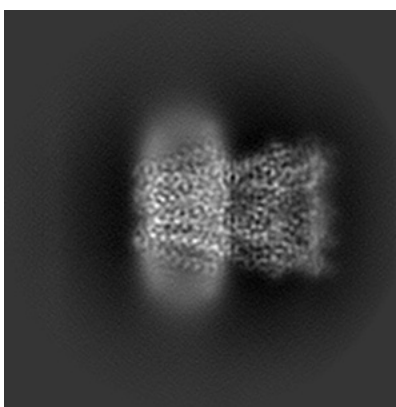


Z

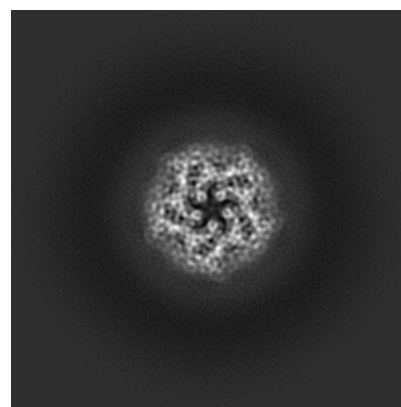
5.1.2 Raw map



X



Y

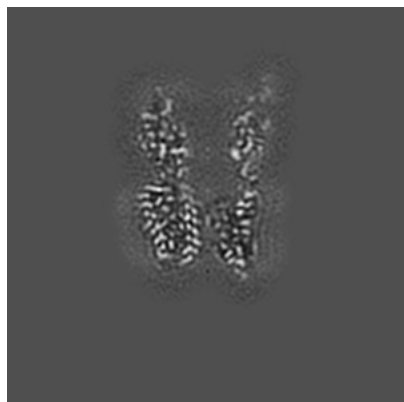


Z

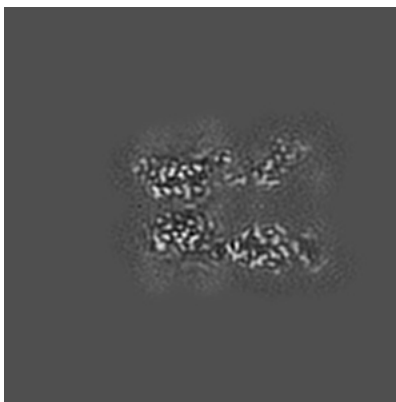
The images above show the map projected in three orthogonal directions.

5.2 Central slices [i](#)

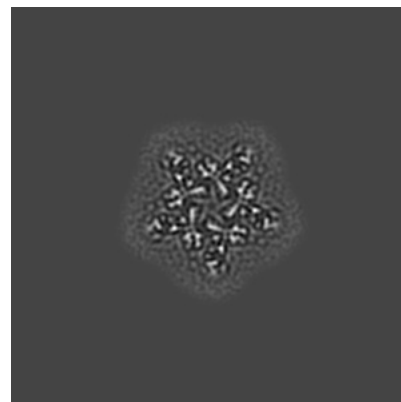
5.2.1 Primary map



X Index: 128

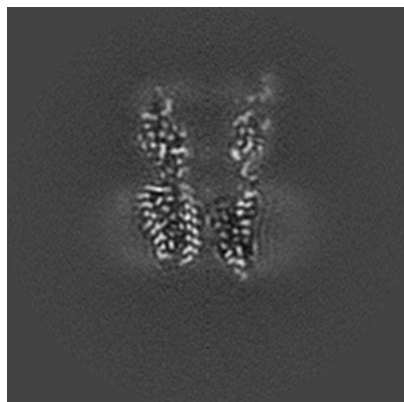


Y Index: 128

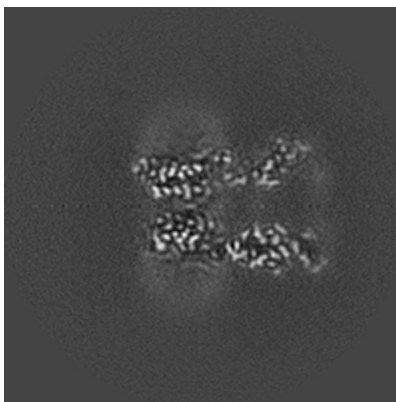


Z Index: 128

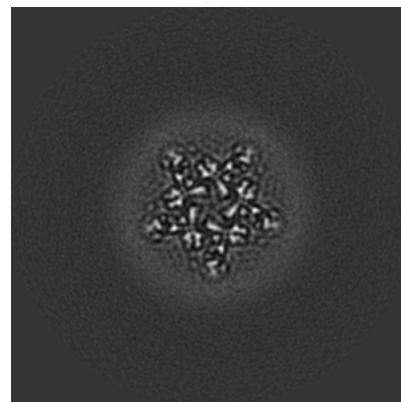
5.2.2 Raw map



X Index: 128



Y Index: 128

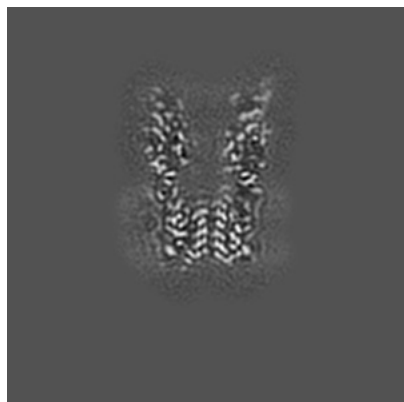


Z Index: 128

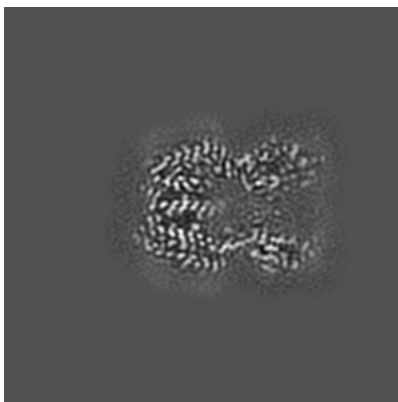
The images above show central slices of the map in three orthogonal directions.

5.3 Largest variance slices [i](#)

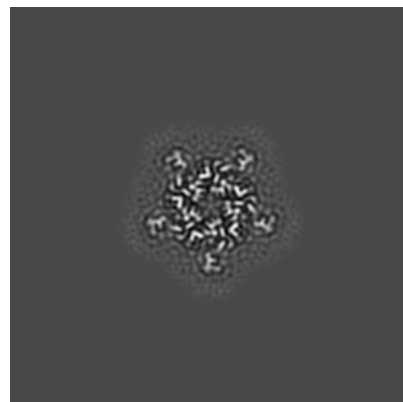
5.3.1 Primary map



X Index: 120

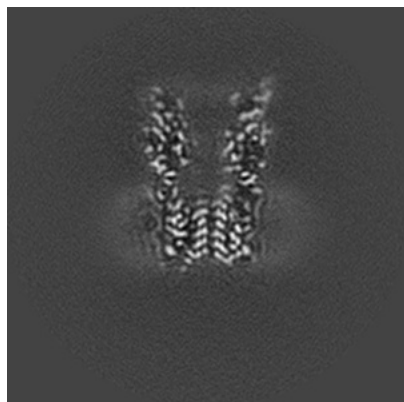


Y Index: 116

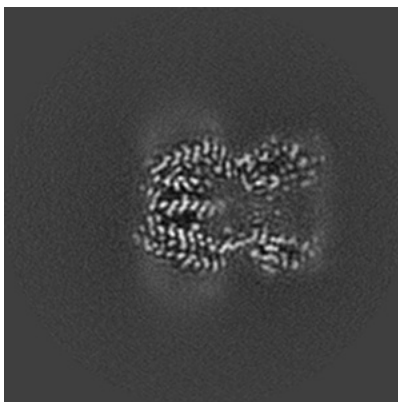


Z Index: 122

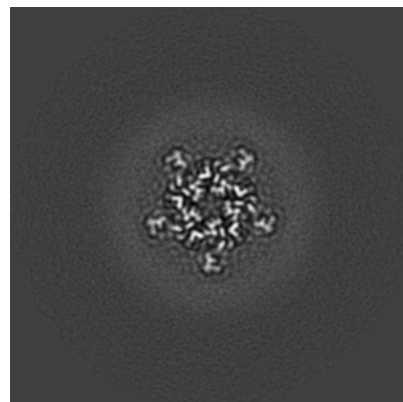
5.3.2 Raw map



X Index: 120



Y Index: 116

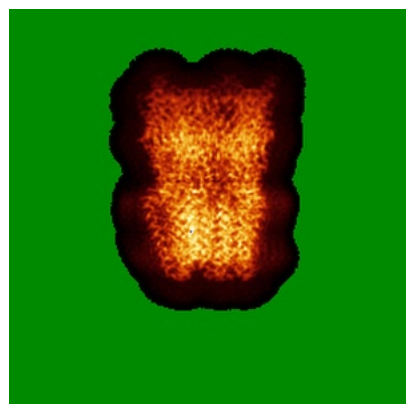


Z Index: 122

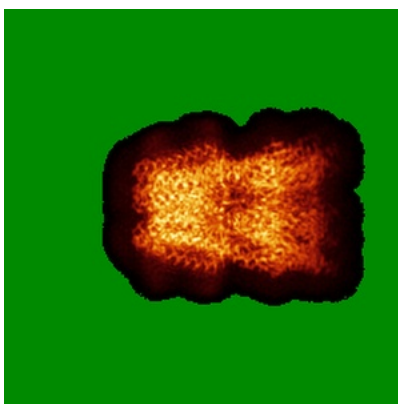
The images above show the largest variance slices of the map in three orthogonal directions.

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

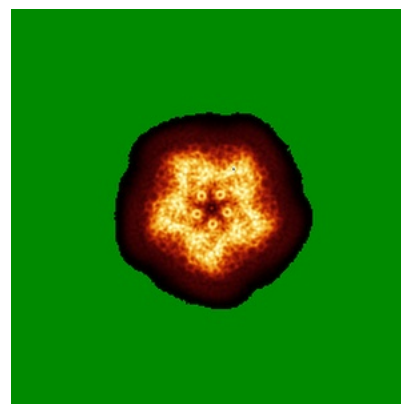
5.4.1 Primary map



X

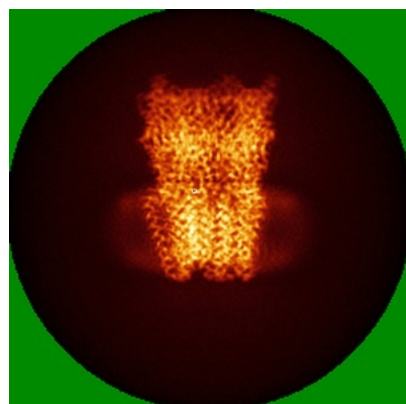


Y

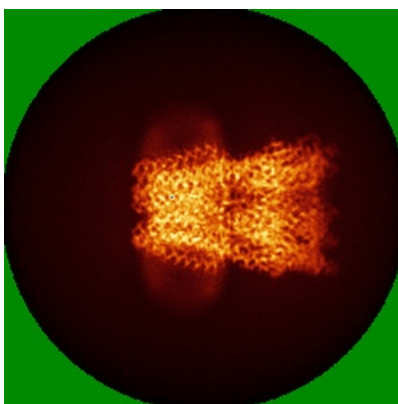


Z

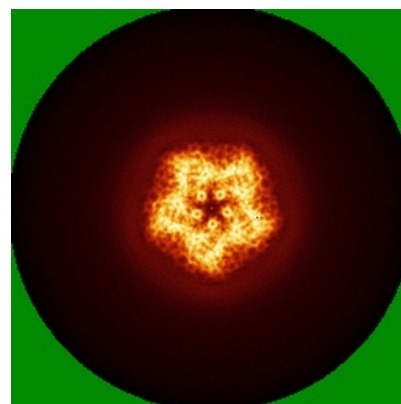
5.4.2 Raw map



X



Y



Z

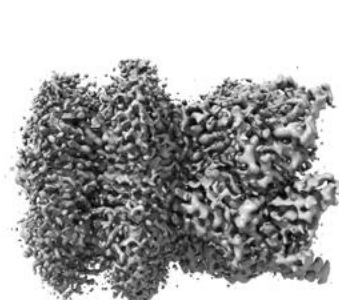
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

5.5 Orthogonal surface views [i](#)

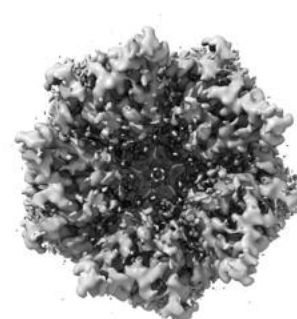
5.5.1 Primary map



X



Y



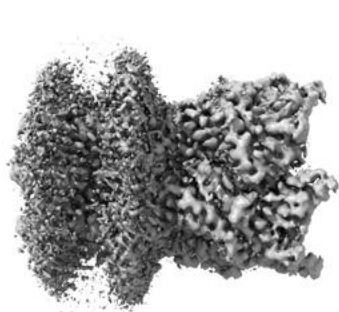
Z

The images above show the 3D surface view of the map at the recommended contour level 0.0033. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

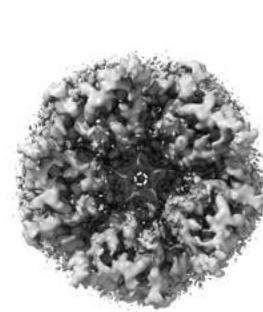
5.5.2 Raw map



X



Y



Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

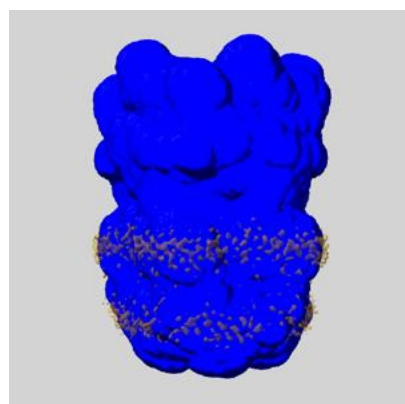
5.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

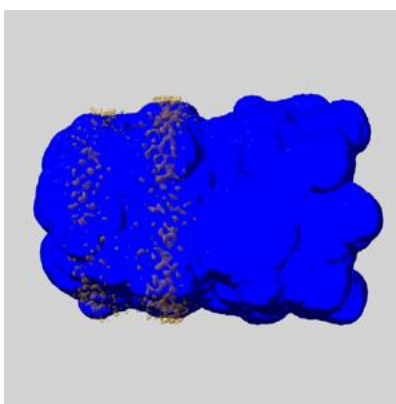
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

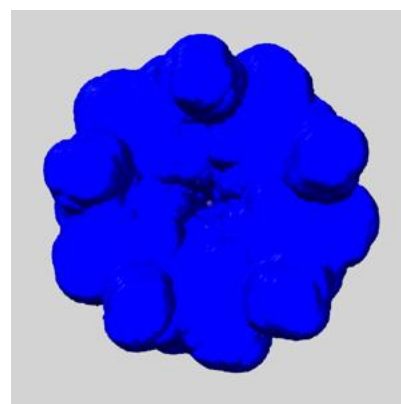
5.6.1 emd_36339_msk_1.map [i](#)



X



Y

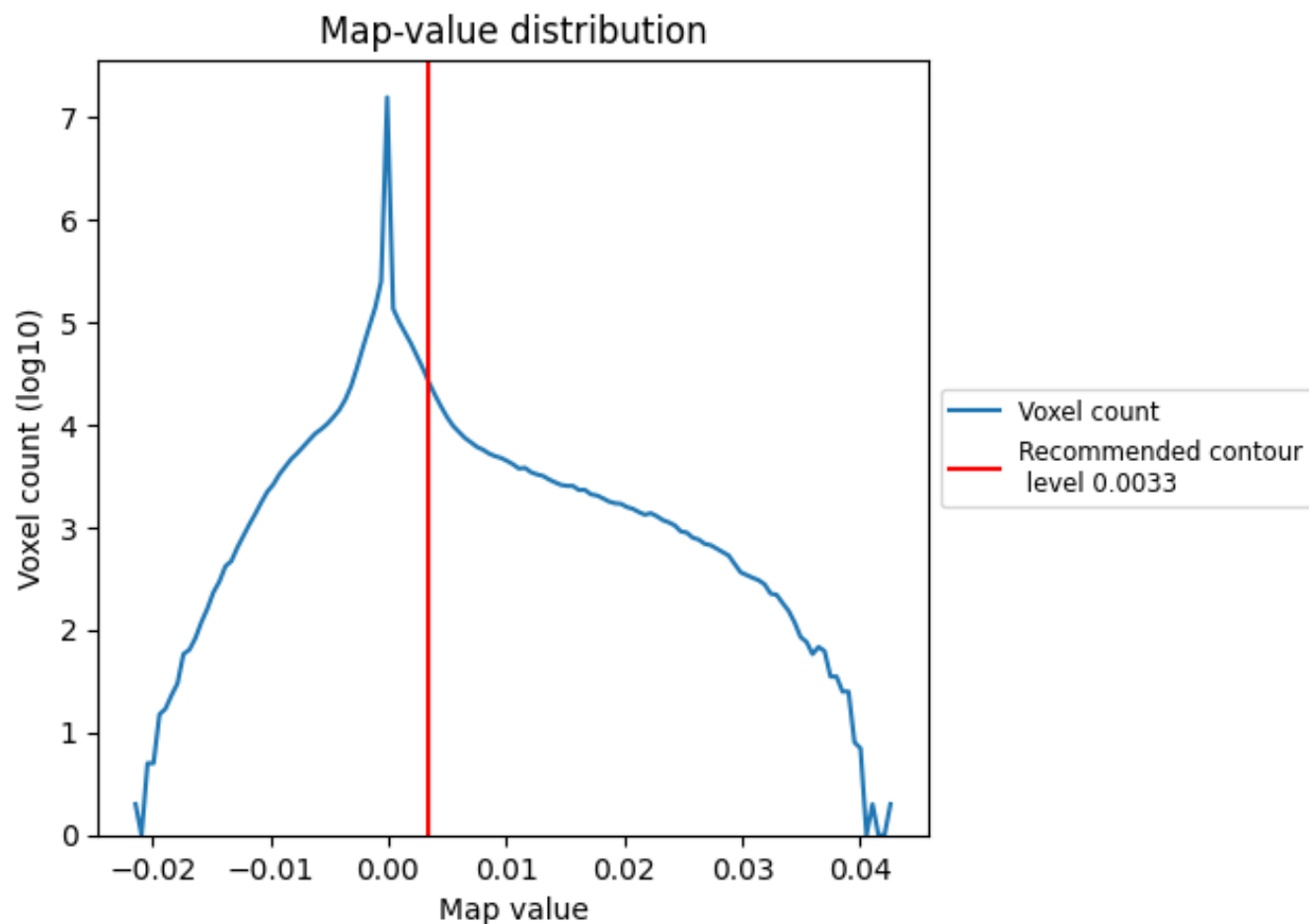


Z

6 Map analysis [i](#)

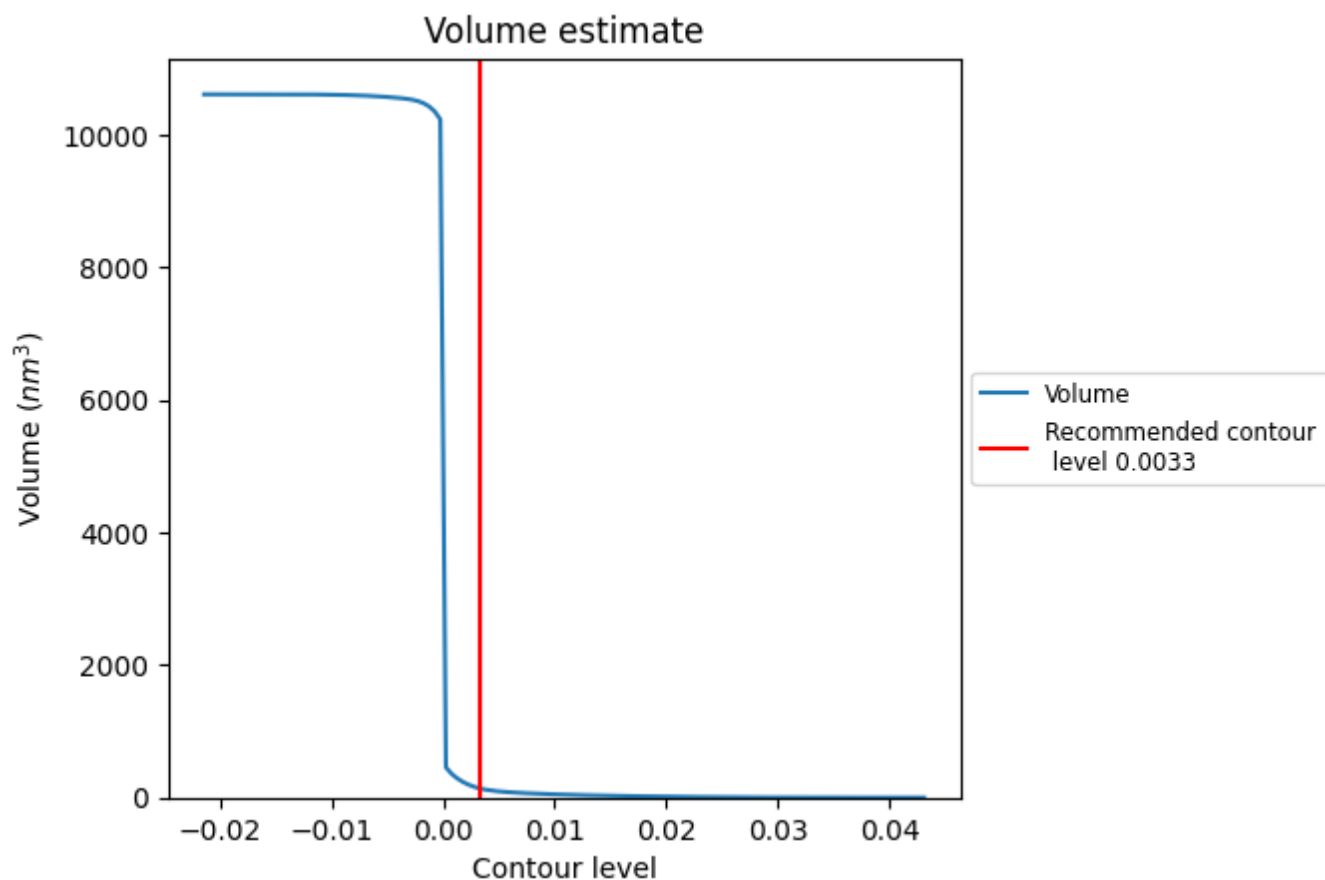
This section contains the results of statistical analysis of the map.

6.1 Map-value distribution [i](#)



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.

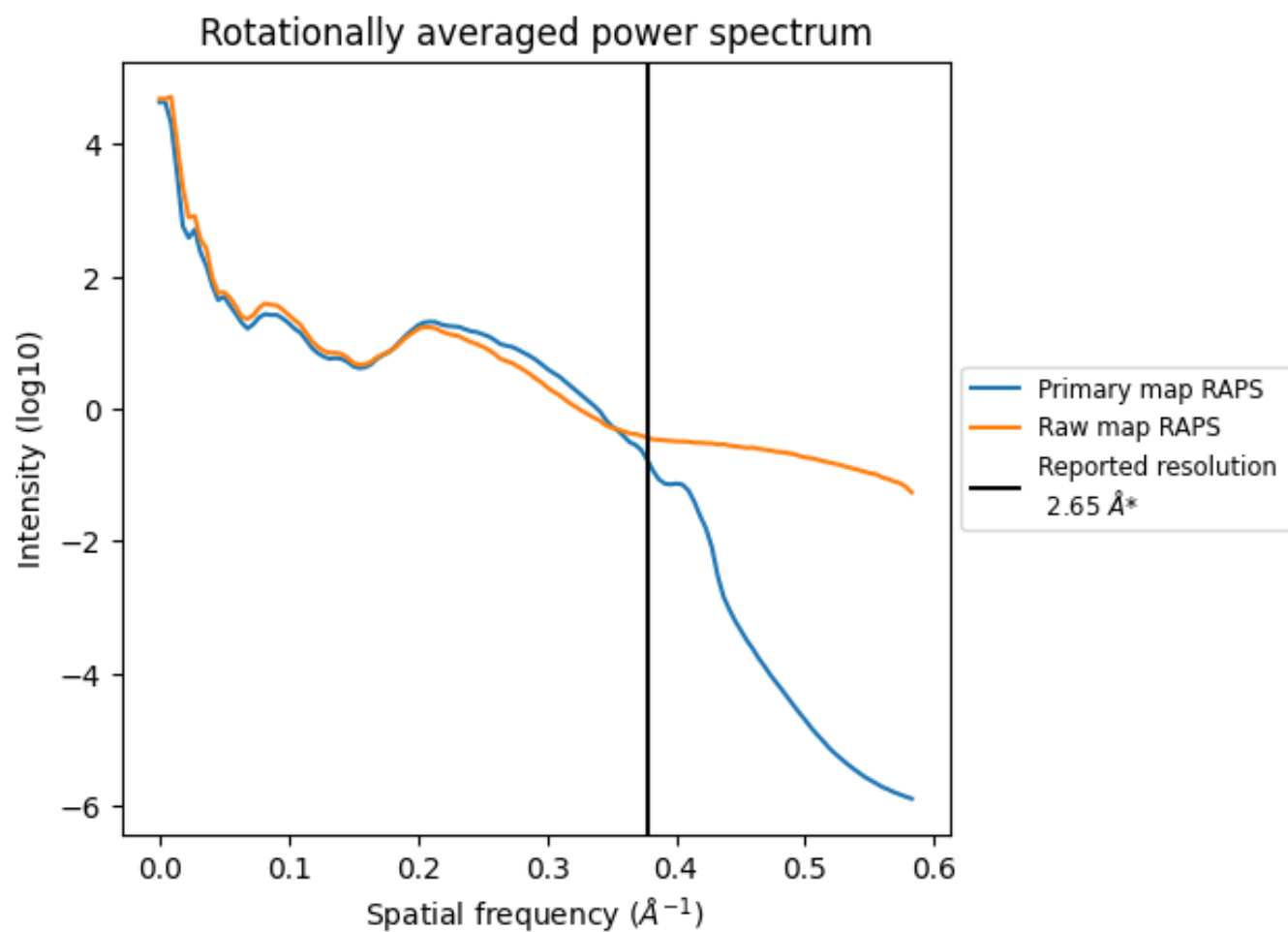
6.2 Volume estimate [i](#)



The volume at the recommended contour level is 138 nm^3 ; this corresponds to an approximate mass of 124 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.

6.3 Rotationally averaged power spectrum ⓘ

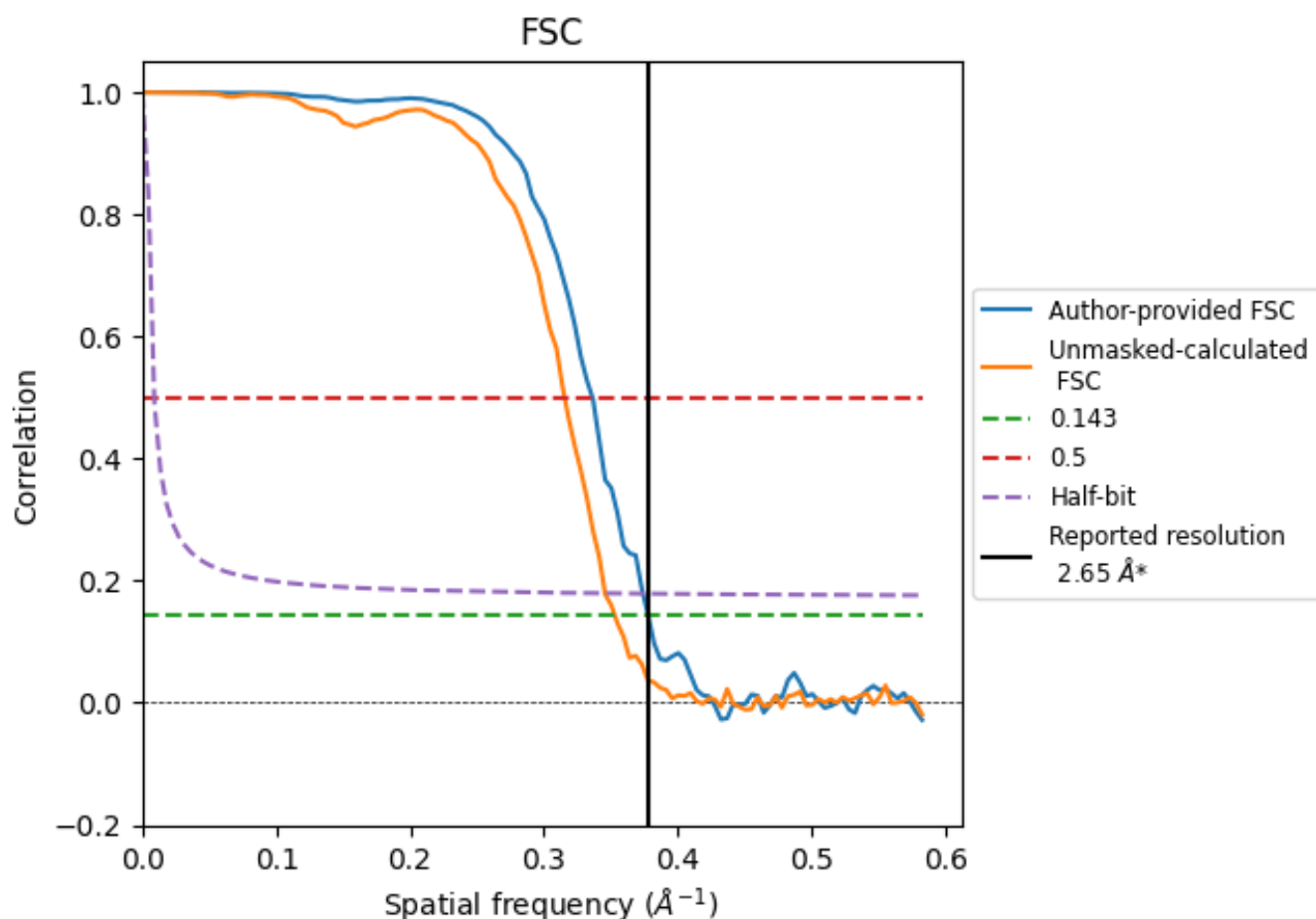


*Reported resolution corresponds to spatial frequency of 0.378 Å⁻¹

7 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

7.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.378 \AA^{-1}

7.2 Resolution estimates [i](#)

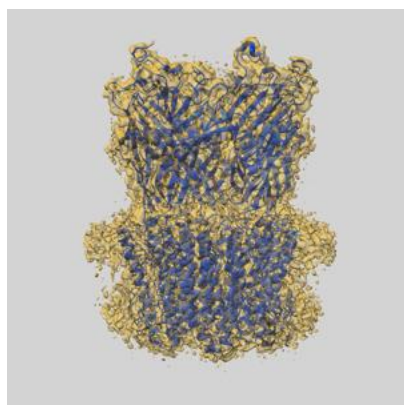
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.65	-	-
Author-provided FSC curve	2.65	2.97	2.67
Unmasked-calculated*	2.83	3.17	2.89

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

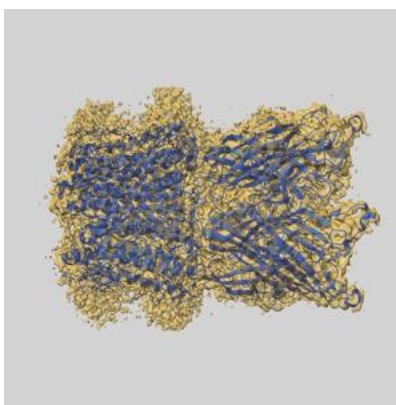
8 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-36339 and PDB model 8JJ3. Per-residue inclusion information can be found in section ?? on page ??.

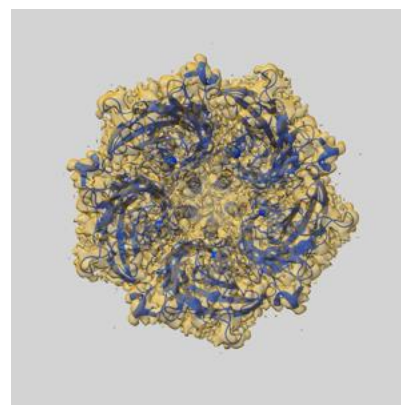
8.1 Map-model overlay [i](#)



X



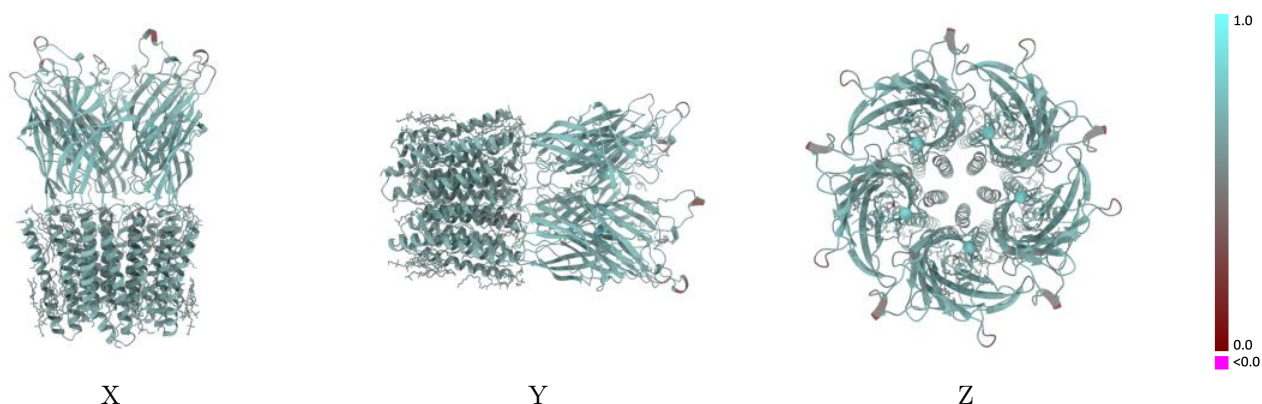
Y



Z

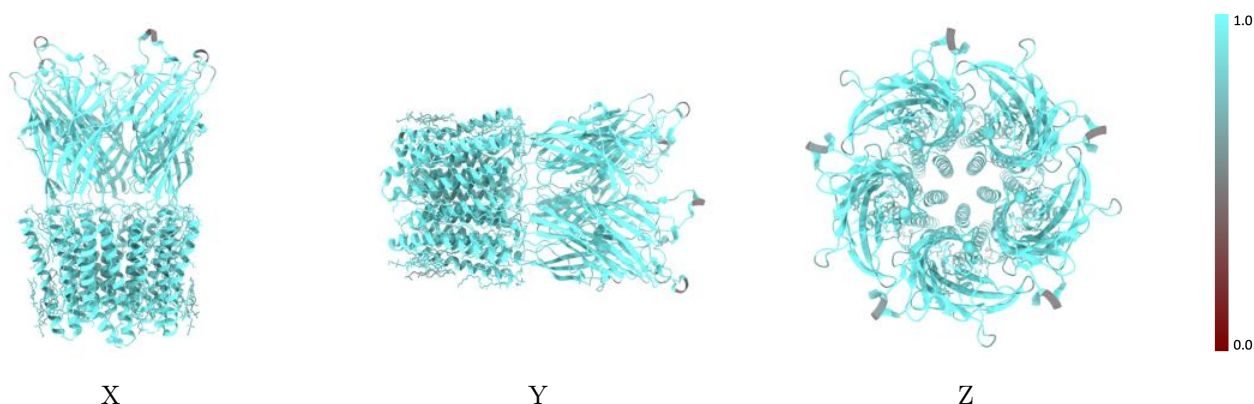
The images above show the 3D surface view of the map at the recommended contour level 0.0033 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

8.2 Q-score mapped to coordinate model [i](#)



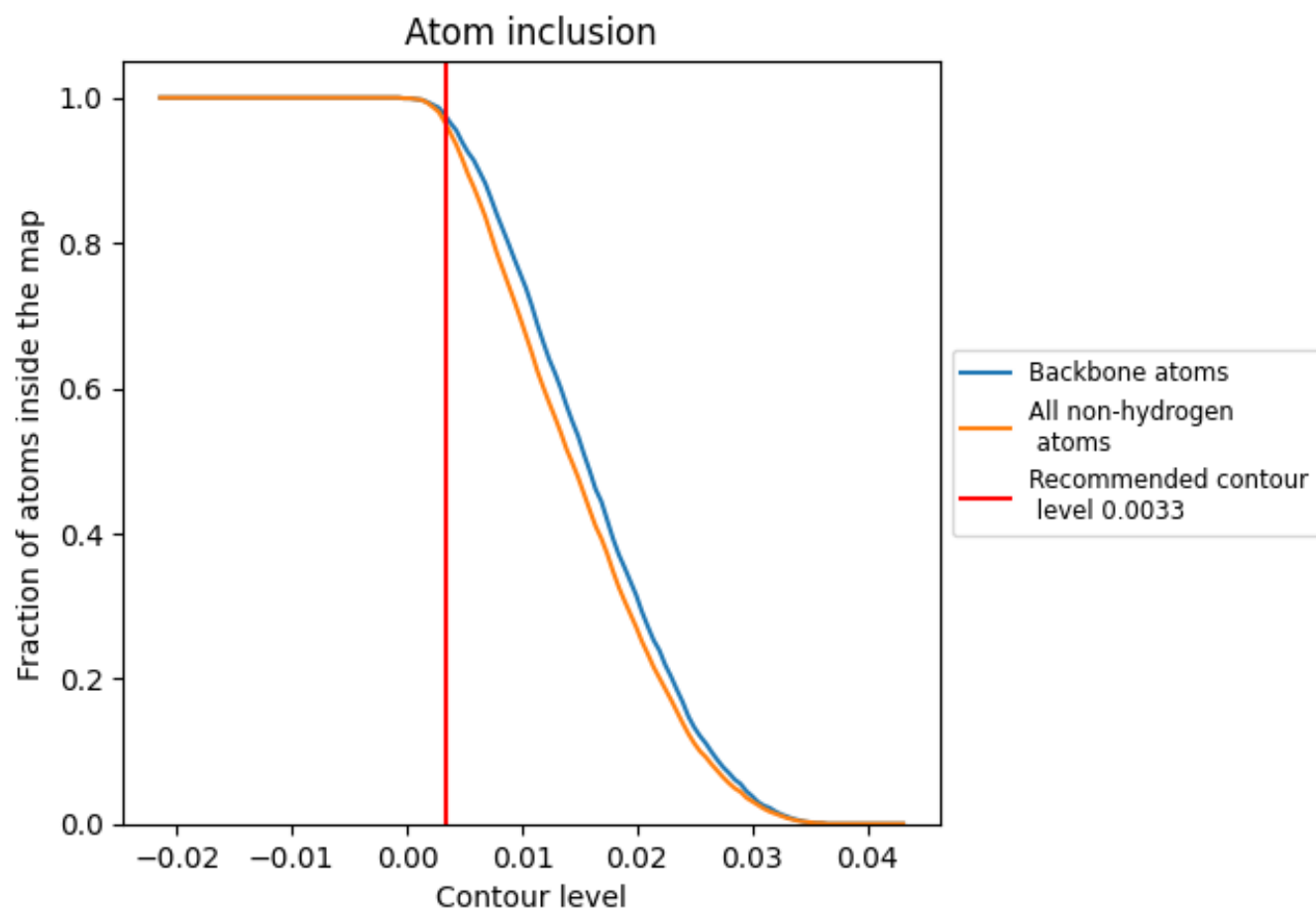
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

8.3 Atom inclusion mapped to coordinate model [i](#)



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 (0.0033).

8.4 Atom inclusion [i](#)



At the recommended contour level, 98% of all backbone atoms, 97% of all non-hydrogen atoms, are inside the map.

8.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.0033) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div></div> 0.9660	<div></div> 0.6240
A	<div></div> 0.9660	<div></div> 0.6250
B	<div></div> 0.9660	<div></div> 0.6250
C	<div></div> 0.9670	<div></div> 0.6230
D	<div></div> 0.9680	<div></div> 0.6230
E	<div></div> 0.9670	<div></div> 0.6240

