



wwPDB EM Validation Summary Report ⓘ

Mar 9, 2026 – 04:25 PM UTC

PDB ID : 7CYC / pdb_00007cyc
EMDB ID : EMD-30496
Title : Cryo-EM structures of Alphacoronavirus spike glycoprotein
Authors : Song, X.; Shi, Y.; Ding, W.; Liu, Z.J.; Peng, G.
Deposited on : 2020-09-03
Resolution : 3.21 Å(reported)
Based on initial model : 5SZS

This is a wwPDB EM Validation Summary 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 : 4-5-2 with Phenix2.0
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

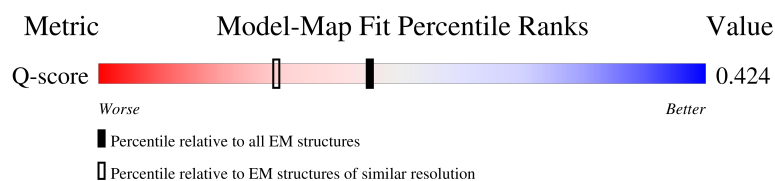
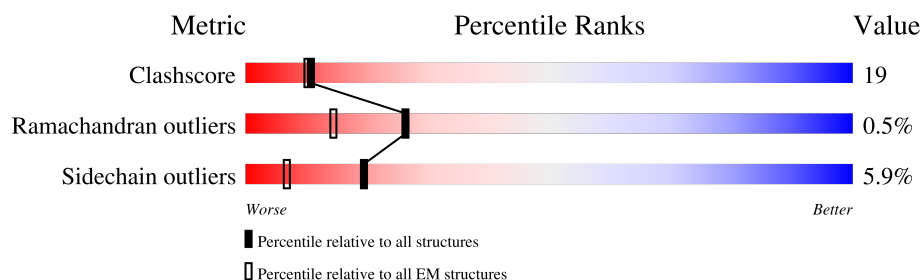
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.21 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	14613 (2.71 - 3.71)

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 $\leq 5\%$. 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	1116	
1	B	1116	
1	C	1116	
2	D	7	

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Mol	Chain	Length	Quality of chain
2	H	7	
2	L	7	
3	E	3	
3	G	3	
3	I	3	
3	K	3	
3	M	3	
3	O	3	
4	F	2	
4	J	2	
4	N	2	

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	NAG	A	1201	-	-	X	-
5	NAG	B	1201	-	-	X	-
5	NAG	C	1201	-	-	X	-

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 22521 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.

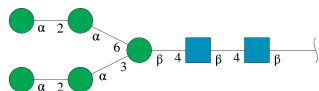
- Molecule 1 is a protein called Spike glycoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	959	Total	C	N	O	S	0	0
			7094	4483	1225	1349	37		
1	B	959	Total	C	N	O	S	0	0
			7094	4483	1225	1349	37		
1	C	959	Total	C	N	O	S	0	0
			7094	4483	1225	1349	37		

There are 24 discrepancies between the modelled and reference sequences:

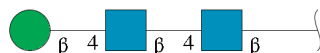
Chain	Residue	Modelled	Actual	Comment	Reference
A	642	MET	ARG	variant	UNP P15423
A	681	ARG	THR	variant	UNP P15423
A	765	ALA	VAL	variant	UNP P15423
A	775	SER	ALA	variant	UNP P15423
A	871	ILE	THR	variant	UNP P15423
A	937	LEU	ILE	variant	UNP P15423
A	971	ARG	THR	variant	UNP P15423
A	1005	ILE	MET	variant	UNP P15423
B	642	MET	ARG	variant	UNP P15423
B	681	ARG	THR	variant	UNP P15423
B	765	ALA	VAL	variant	UNP P15423
B	775	SER	ALA	variant	UNP P15423
B	871	ILE	THR	variant	UNP P15423
B	937	LEU	ILE	variant	UNP P15423
B	971	ARG	THR	variant	UNP P15423
B	1005	ILE	MET	variant	UNP P15423
C	642	MET	ARG	variant	UNP P15423
C	681	ARG	THR	variant	UNP P15423
C	765	ALA	VAL	variant	UNP P15423
C	775	SER	ALA	variant	UNP P15423
C	871	ILE	THR	variant	UNP P15423
C	937	LEU	ILE	variant	UNP P15423
C	971	ARG	THR	variant	UNP P15423
C	1005	ILE	MET	variant	UNP P15423

- Molecule 2 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				AltConf	Trace
2	D	7	Total	C	N	O	0	0
			83	46	2	35		
2	H	7	Total	C	N	O	0	0
			83	46	2	35		
2	L	7	Total	C	N	O	0	0
			83	46	2	35		

- Molecule 3 is an oligosaccharide called beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



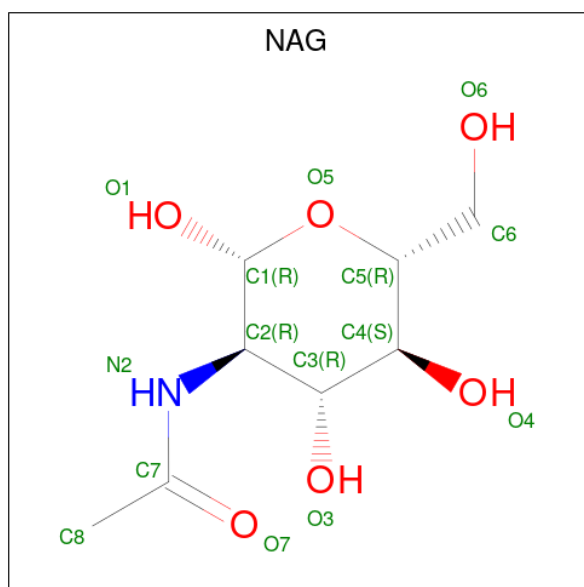
Mol	Chain	Residues	Atoms				AltConf	Trace
3	E	3	Total	C	N	O	0	0
			39	22	2	15		
3	G	3	Total	C	N	O	0	0
			39	22	2	15		
3	I	3	Total	C	N	O	0	0
			39	22	2	15		
3	K	3	Total	C	N	O	0	0
			39	22	2	15		
3	M	3	Total	C	N	O	0	0
			39	22	2	15		
3	O	3	Total	C	N	O	0	0
			39	22	2	15		

- Molecule 4 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				AltConf	Trace
4	F	2	Total	C	N	O	0	0
			28	16	2	10		
4	J	2	Total	C	N	O	0	0
			28	16	2	10		
4	N	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	

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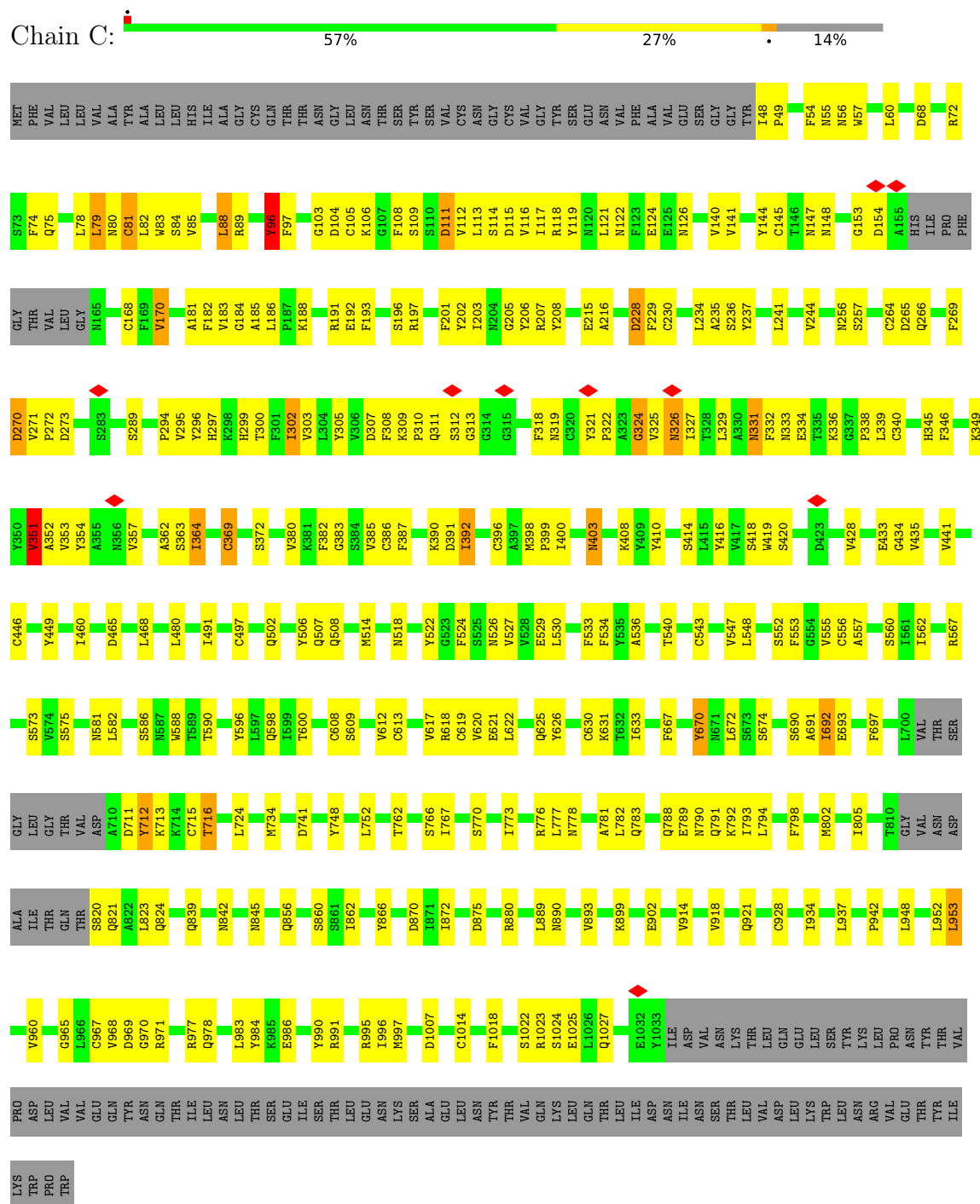
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Mol	Chain	Residues	Atoms				AltConf
5	A	1	Total 14	C 8	N 1	O 5	0
5	A	1	Total 14	C 8	N 1	O 5	0
5	A	1	Total 14	C 8	N 1	O 5	0
5	A	1	Total 14	C 8	N 1	O 5	0
5	A	1	Total 14	C 8	N 1	O 5	0
5	A	1	Total 14	C 8	N 1	O 5	0
5	A	1	Total 14	C 8	N 1	O 5	0
5	A	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0

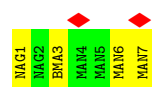
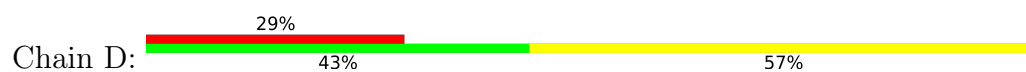
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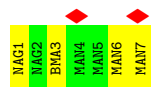
Mol	Chain	Residues	Atoms				AltConf
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	B	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0
5	C	1	Total 14	C 8	N 1	O 5	0



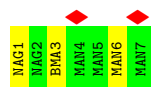
- Molecule 2: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 2: α -D-mannopyranose-(1-2)- α -D-mannopyranose-(1-3)-[α -D-mannopyranose-(1-2)- α -D-mannopyranose-(1-6)] β -D-mannopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose



- Molecule 2: α -D-mannopyranose-(1-2)- α -D-mannopyranose-(1-3)-[α -D-mannopyranose-(1-2)- α -D-mannopyranose-(1-6)] β -D-mannopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose



- Molecule 3: β -D-mannopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose



- Molecule 3: β -D-mannopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose



- Molecule 3: β -D-mannopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose



- Molecule 3: β -D-mannopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose





- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	36846	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 ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	2000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	18000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	29.222	Depositor
Minimum map value	-10.273	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	4	Depositor
Map size ($\text{\AA}$)	280.0, 280.0, 280.0	wwPDB
Map dimensions	200, 200, 200	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.4, 1.4, 1.4	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: NAG, BMA, MAN

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	0.42	0/7246	0.78	11/9752 (0.1%)
1	B	0.42	0/7246	0.78	11/9752 (0.1%)
1	C	0.42	0/7246	0.78	13/9752 (0.1%)
All	All	0.42	0/21738	0.78	35/29256 (0.1%)

There are no bond length outliers.

The worst 5 of 35 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	716	THR	N-CA-C	-7.69	102.96	114.64
1	A	716	THR	N-CA-C	-7.66	103.00	114.64
1	B	716	THR	N-CA-C	-7.64	103.03	114.64
1	B	96	TYR	CB-CA-C	-7.62	100.56	111.76
1	C	96	TYR	CB-CA-C	-7.62	100.56	111.76

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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	7094	0	6274	283	0
1	B	7094	0	6273	291	0
1	C	7094	0	6273	270	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	D	83	0	70	0	0
2	H	83	0	70	0	0
2	L	83	0	70	0	0
3	E	39	0	34	0	0
3	G	39	0	34	2	0
3	I	39	0	34	0	0
3	K	39	0	34	2	0
3	M	39	0	34	0	0
3	O	39	0	34	2	0
4	F	28	0	25	0	0
4	J	28	0	25	0	0
4	N	28	0	25	0	0
5	A	224	0	208	15	0
5	B	224	0	208	14	0
5	C	224	0	208	15	0
All	All	22521	0	19933	788	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 19.

The worst 5 of 788 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)
1:B:230:CYS:SG	5:B:1202:NAG:H83	1.52	1.50
1:C:230:CYS:SG	5:C:1202:NAG:H83	1.52	1.49
1:A:230:CYS:SG	5:A:1202:NAG:H83	1.57	1.44
1:B:78:LEU:CD2	1:B:236:SER:HB2	1.65	1.27
1:A:78:LEU:CD2	1:A:236:SER:HB2	1.65	1.26

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	951/1116 (85%)	893 (94%)	53 (6%)	5 (0%)	24	58
1	B	951/1116 (85%)	893 (94%)	53 (6%)	5 (0%)	24	58
1	C	951/1116 (85%)	893 (94%)	53 (6%)	5 (0%)	24	58
All	All	2853/3348 (85%)	2679 (94%)	159 (6%)	15 (0%)	26	58

5 of 15 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	325	VAL
1	A	331	ASN
1	A	351	VAL
1	B	325	VAL
1	B	331	ASN

5.3.2 Protein sidechains ⓘ

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	731/969 (75%)	684 (94%)	47 (6%)	16	46
1	B	721/969 (74%)	679 (94%)	42 (6%)	18	49
1	C	723/969 (75%)	684 (95%)	39 (5%)	20	51
All	All	2175/2907 (75%)	2047 (94%)	128 (6%)	19	48

5 of 128 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	428	VAL
1	C	630	CYS
1	B	81	CYS
1	B	79	LEU
1	C	692	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 39 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	403	ASN
1	C	890	ASN
1	C	469	ASN
1	C	839	GLN
1	C	933	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

45 monosaccharides are modelled in this entry.

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	$\# Z > 2$
2	NAG	D	1	2,1	14,14,15	0.40	0	17,19,21	1.12	2 (11%)
2	NAG	D	2	2	14,14,15	0.30	0	17,19,21	0.75	0
2	BMA	D	3	2	11,11,12	0.35	0	15,15,17	1.48	3 (20%)
2	MAN	D	4	2	11,11,12	0.19	0	15,15,17	0.74	0
2	MAN	D	5	2	11,11,12	0.20	0	15,15,17	0.60	0
2	MAN	D	6	2	11,11,12	0.18	0	15,15,17	0.99	1 (6%)
2	MAN	D	7	2	11,11,12	0.22	0	15,15,17	0.91	1 (6%)
3	NAG	E	1	1,3	14,14,15	0.64	0	17,19,21	0.78	0
3	NAG	E	2	3	14,14,15	0.58	0	17,19,21	0.40	0
3	BMA	E	3	3	11,11,12	0.49	0	15,15,17	0.93	1 (6%)
4	NAG	F	1	1,4	14,14,15	0.27	0	17,19,21	0.48	0
4	NAG	F	2	4	14,14,15	0.24	0	17,19,21	0.60	0
3	NAG	G	1	1,3	14,14,15	0.67	0	17,19,21	0.71	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	NAG	G	2	3	14,14,15	0.49	0	17,19,21	0.40	0
3	BMA	G	3	3	11,11,12	0.51	0	15,15,17	0.94	1 (6%)
2	NAG	H	1	2,1	14,14,15	0.41	0	17,19,21	1.11	2 (11%)
2	NAG	H	2	2	14,14,15	0.31	0	17,19,21	0.77	0
2	BMA	H	3	2	11,11,12	0.35	0	15,15,17	1.49	3 (20%)
2	MAN	H	4	2	11,11,12	0.19	0	15,15,17	0.73	0
2	MAN	H	5	2	11,11,12	0.18	0	15,15,17	0.61	0
2	MAN	H	6	2	11,11,12	0.19	0	15,15,17	1.00	1 (6%)
2	MAN	H	7	2	11,11,12	0.22	0	15,15,17	0.92	1 (6%)
3	NAG	I	1	1,3	14,14,15	0.63	0	17,19,21	0.78	0
3	NAG	I	2	3	14,14,15	0.59	0	17,19,21	0.39	0
3	BMA	I	3	3	11,11,12	0.50	0	15,15,17	0.93	1 (6%)
4	NAG	J	1	1,4	14,14,15	0.29	0	17,19,21	0.49	0
4	NAG	J	2	4	14,14,15	0.22	0	17,19,21	0.61	0
3	NAG	K	1	1,3	14,14,15	0.67	0	17,19,21	0.71	1 (5%)
3	NAG	K	2	3	14,14,15	0.51	0	17,19,21	0.41	0
3	BMA	K	3	3	11,11,12	0.50	0	15,15,17	0.94	1 (6%)
2	NAG	L	1	2,1	14,14,15	0.39	0	17,19,21	1.12	2 (11%)
2	NAG	L	2	2	14,14,15	0.31	0	17,19,21	0.75	0
2	BMA	L	3	2	11,11,12	0.35	0	15,15,17	1.48	3 (20%)
2	MAN	L	4	2	11,11,12	0.20	0	15,15,17	0.73	0
2	MAN	L	5	2	11,11,12	0.20	0	15,15,17	0.61	0
2	MAN	L	6	2	11,11,12	0.17	0	15,15,17	1.00	1 (6%)
2	MAN	L	7	2	11,11,12	0.21	0	15,15,17	0.90	0
3	NAG	M	1	1,3	14,14,15	0.64	0	17,19,21	0.77	0
3	NAG	M	2	3	14,14,15	0.59	0	17,19,21	0.40	0
3	BMA	M	3	3	11,11,12	0.50	0	15,15,17	0.93	1 (6%)
4	NAG	N	1	1,4	14,14,15	0.27	0	17,19,21	0.49	0
4	NAG	N	2	4	14,14,15	0.25	0	17,19,21	0.60	0
3	NAG	O	1	1,3	14,14,15	0.67	0	17,19,21	0.70	1 (5%)
3	NAG	O	2	3	14,14,15	0.50	0	17,19,21	0.40	0
3	BMA	O	3	3	11,11,12	0.50	0	15,15,17	0.94	1 (6%)

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
2	NAG	D	1	2,1	-	3/6/23/26	0/1/1/1
2	NAG	D	2	2	-	2/6/23/26	0/1/1/1
2	BMA	D	3	2	-	0/2/19/22	0/1/1/1
2	MAN	D	4	2	-	0/2/19/22	0/1/1/1
2	MAN	D	5	2	-	1/2/19/22	1/1/1/1
2	MAN	D	6	2	-	0/2/19/22	1/1/1/1
2	MAN	D	7	2	-	0/2/19/22	1/1/1/1
3	NAG	E	1	1,3	-	1/6/23/26	0/1/1/1
3	NAG	E	2	3	-	1/6/23/26	0/1/1/1
3	BMA	E	3	3	-	0/2/19/22	0/1/1/1
4	NAG	F	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	F	2	4	-	0/6/23/26	0/1/1/1
3	NAG	G	1	1,3	-	1/6/23/26	0/1/1/1
3	NAG	G	2	3	-	2/6/23/26	0/1/1/1
3	BMA	G	3	3	-	0/2/19/22	0/1/1/1
2	NAG	H	1	2,1	-	3/6/23/26	0/1/1/1
2	NAG	H	2	2	-	2/6/23/26	0/1/1/1
2	BMA	H	3	2	-	0/2/19/22	0/1/1/1
2	MAN	H	4	2	-	0/2/19/22	0/1/1/1
2	MAN	H	5	2	-	1/2/19/22	1/1/1/1
2	MAN	H	6	2	-	0/2/19/22	1/1/1/1
2	MAN	H	7	2	-	0/2/19/22	1/1/1/1
3	NAG	I	1	1,3	-	1/6/23/26	0/1/1/1
3	NAG	I	2	3	-	1/6/23/26	0/1/1/1
3	BMA	I	3	3	-	0/2/19/22	0/1/1/1
4	NAG	J	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	J	2	4	-	0/6/23/26	0/1/1/1
3	NAG	K	1	1,3	-	1/6/23/26	0/1/1/1
3	NAG	K	2	3	-	2/6/23/26	0/1/1/1
3	BMA	K	3	3	-	0/2/19/22	0/1/1/1
2	NAG	L	1	2,1	-	3/6/23/26	0/1/1/1
2	NAG	L	2	2	-	2/6/23/26	0/1/1/1
2	BMA	L	3	2	-	0/2/19/22	0/1/1/1
2	MAN	L	4	2	-	0/2/19/22	0/1/1/1
2	MAN	L	5	2	-	1/2/19/22	1/1/1/1
2	MAN	L	6	2	-	0/2/19/22	1/1/1/1
2	MAN	L	7	2	-	0/2/19/22	1/1/1/1
3	NAG	M	1	1,3	-	1/6/23/26	0/1/1/1
3	NAG	M	2	3	-	1/6/23/26	0/1/1/1
3	BMA	M	3	3	-	0/2/19/22	0/1/1/1
4	NAG	N	1	1,4	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	N	2	4	-	0/6/23/26	0/1/1/1
3	NAG	O	1	1,3	-	1/6/23/26	0/1/1/1
3	NAG	O	2	3	-	2/6/23/26	0/1/1/1
3	BMA	O	3	3	-	0/2/19/22	0/1/1/1

There are no bond length outliers.

The worst 5 of 29 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	3	BMA	C3-C4-C5	3.66	116.88	110.23
2	L	3	BMA	C3-C4-C5	3.64	116.83	110.23
2	D	3	BMA	C3-C4-C5	3.63	116.82	110.23
2	L	1	NAG	O5-C1-C2	-3.41	106.01	111.29
2	D	1	NAG	O5-C1-C2	-3.37	106.07	111.29

There are no chirality outliers.

5 of 39 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	D	1	NAG	C8-C7-N2-C2
2	D	1	NAG	O7-C7-N2-C2
2	H	1	NAG	C8-C7-N2-C2
2	H	1	NAG	O7-C7-N2-C2
2	L	1	NAG	C8-C7-N2-C2

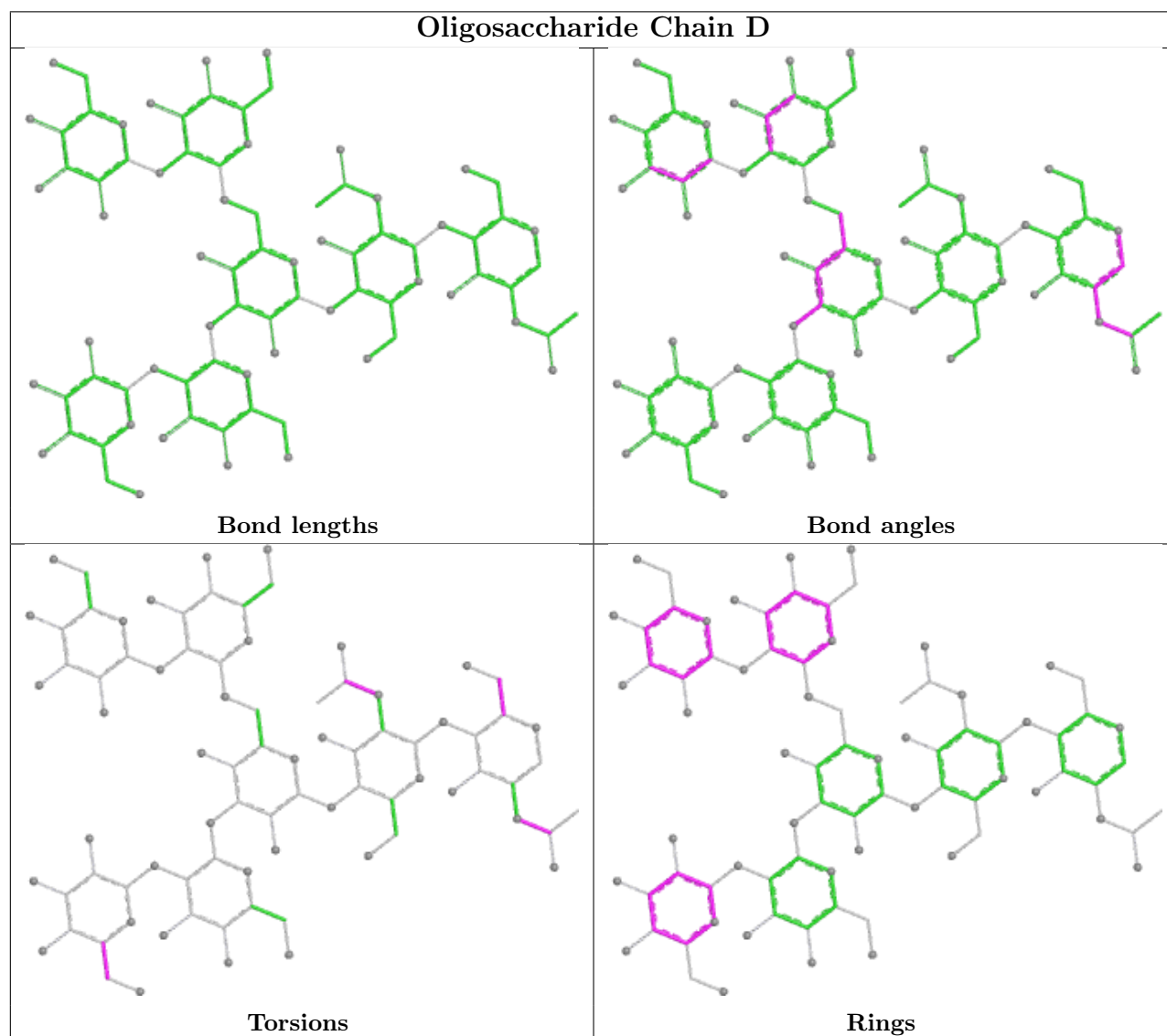
5 of 9 ring outliers are listed below:

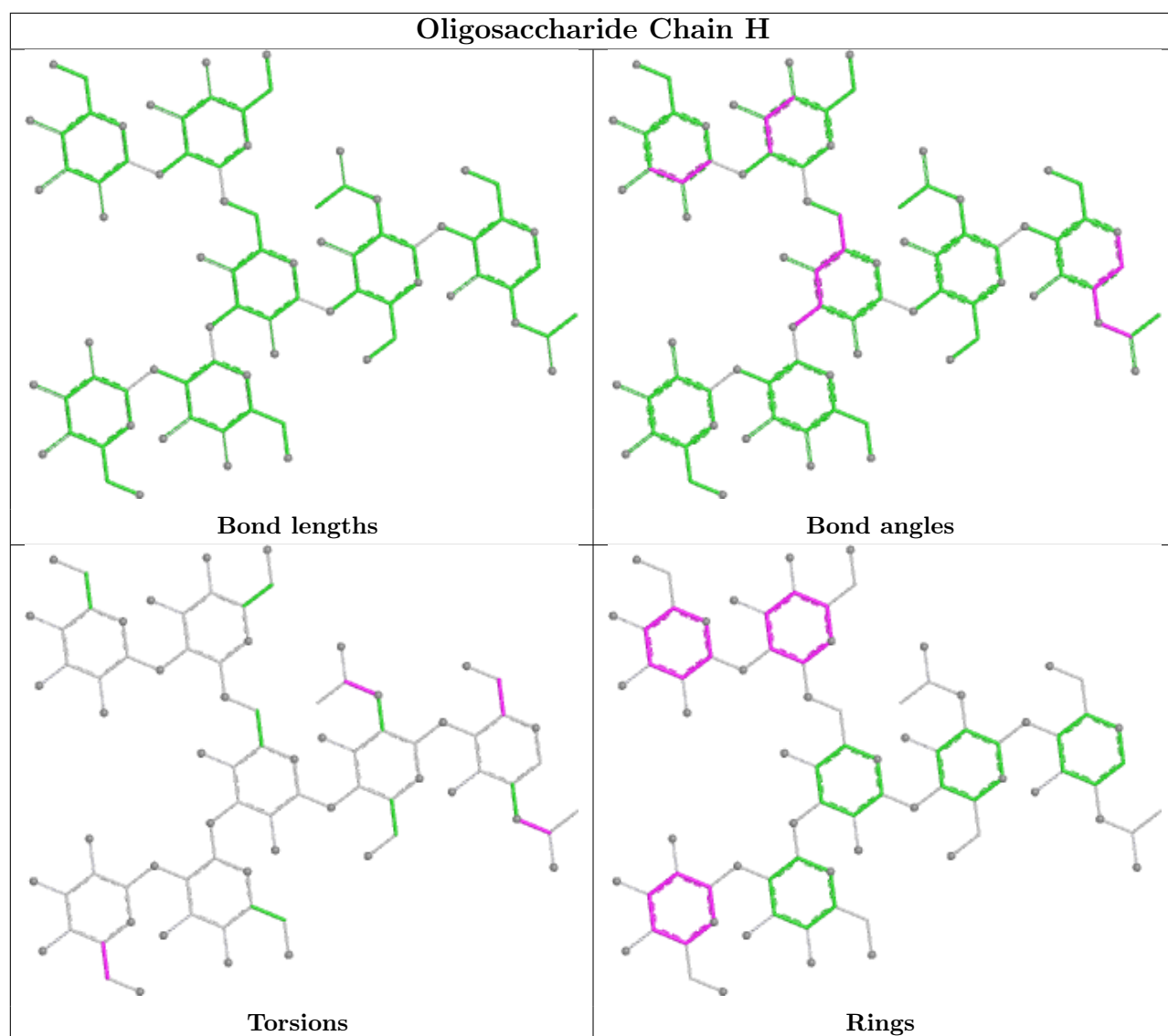
Mol	Chain	Res	Type	Atoms
2	D	7	MAN	C1-C2-C3-C4-C5-O5
2	H	7	MAN	C1-C2-C3-C4-C5-O5
2	L	7	MAN	C1-C2-C3-C4-C5-O5
2	H	5	MAN	C1-C2-C3-C4-C5-O5
2	L	5	MAN	C1-C2-C3-C4-C5-O5

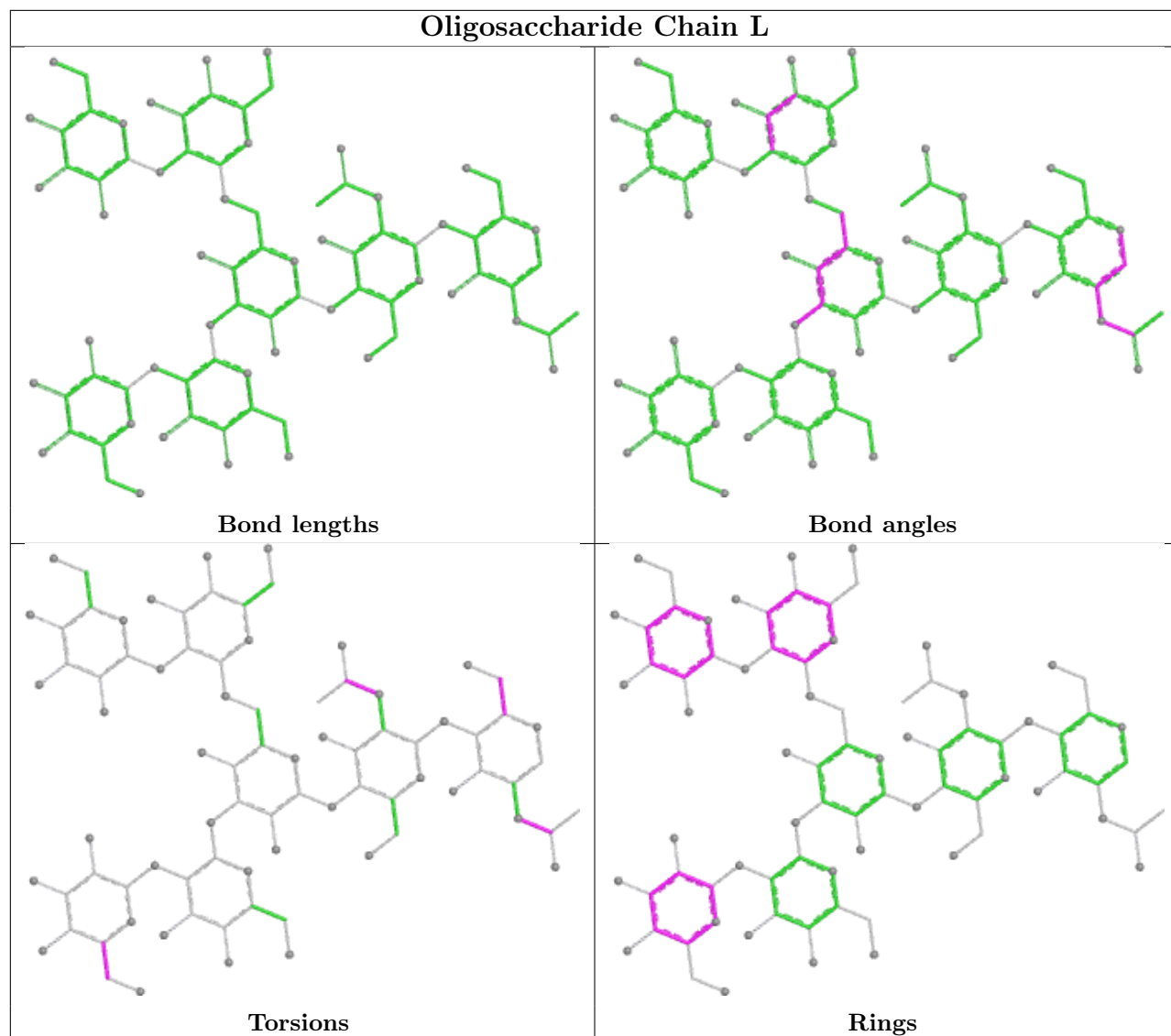
3 monomers are involved in 6 short contacts:

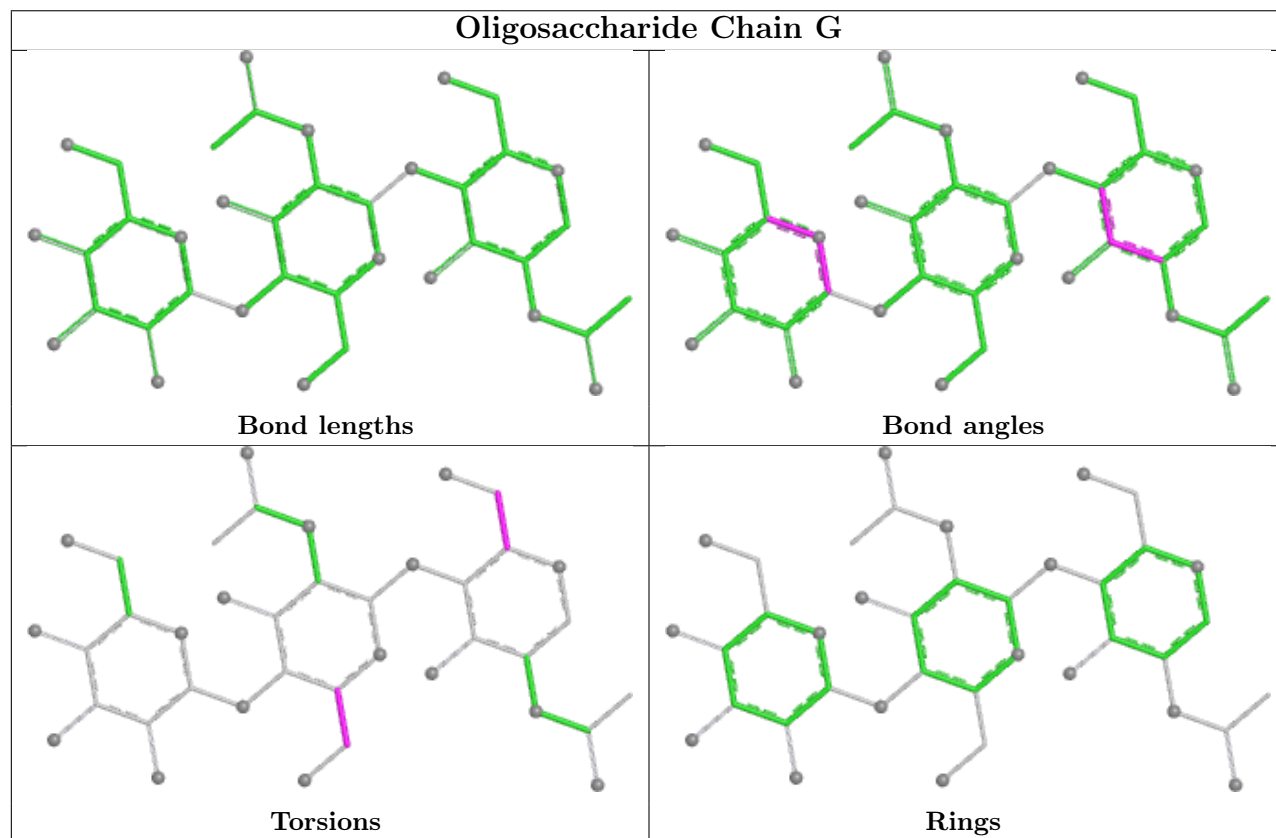
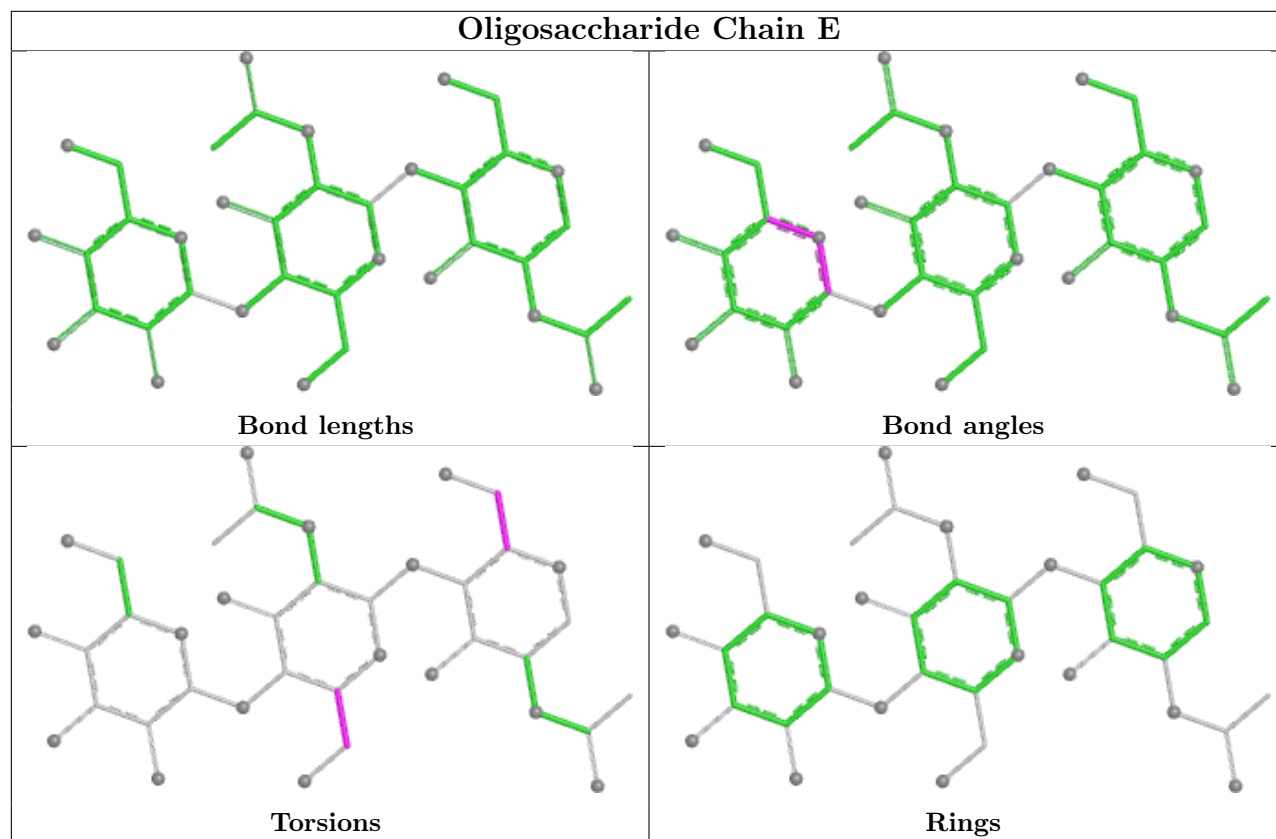
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	K	1	NAG	2	0
3	O	1	NAG	2	0
3	G	1	NAG	2	0

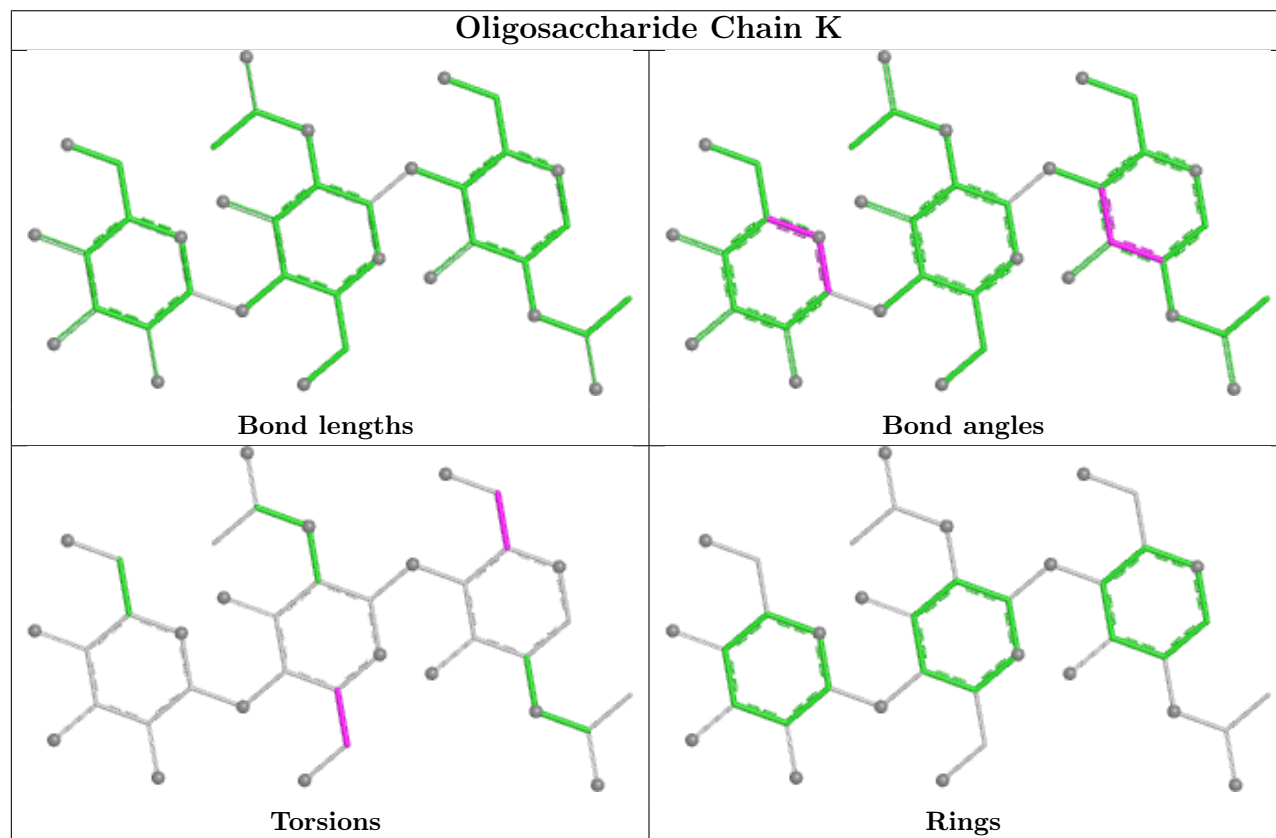
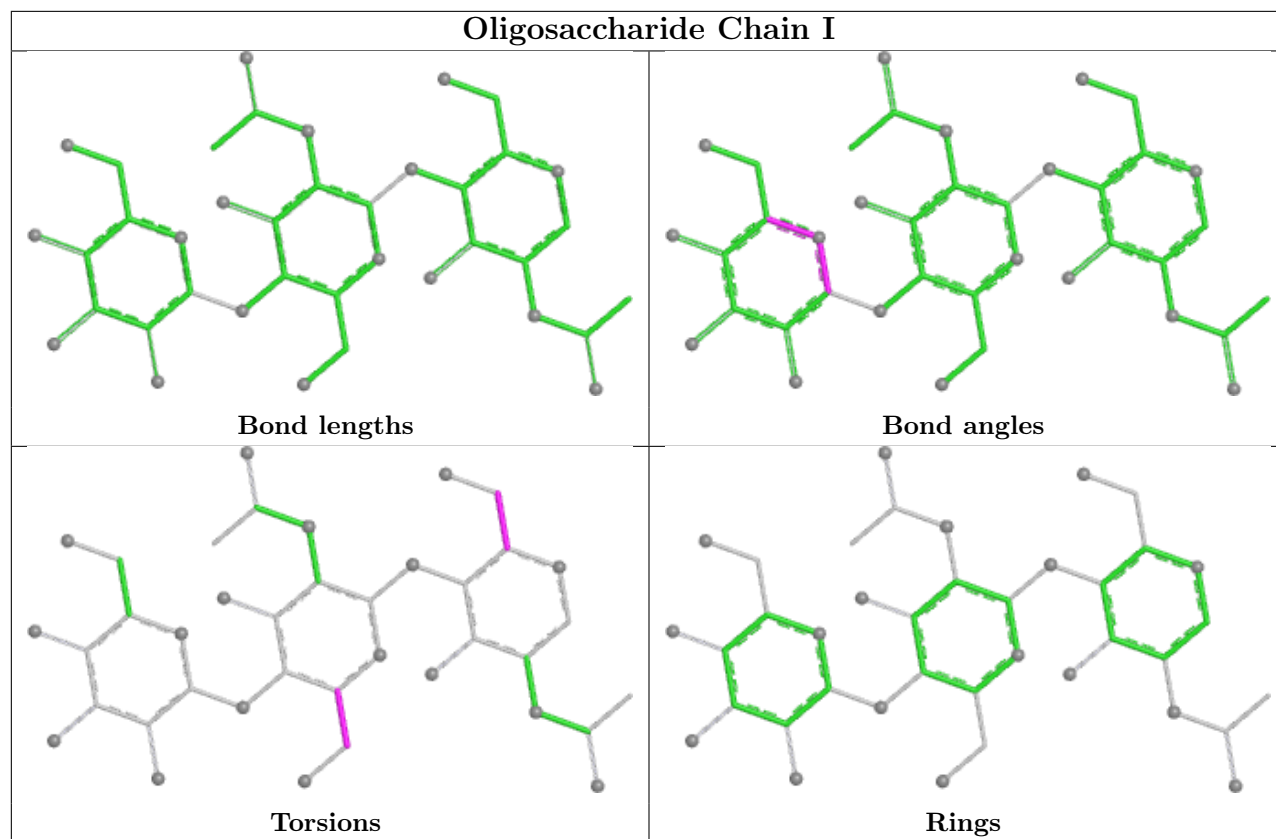
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

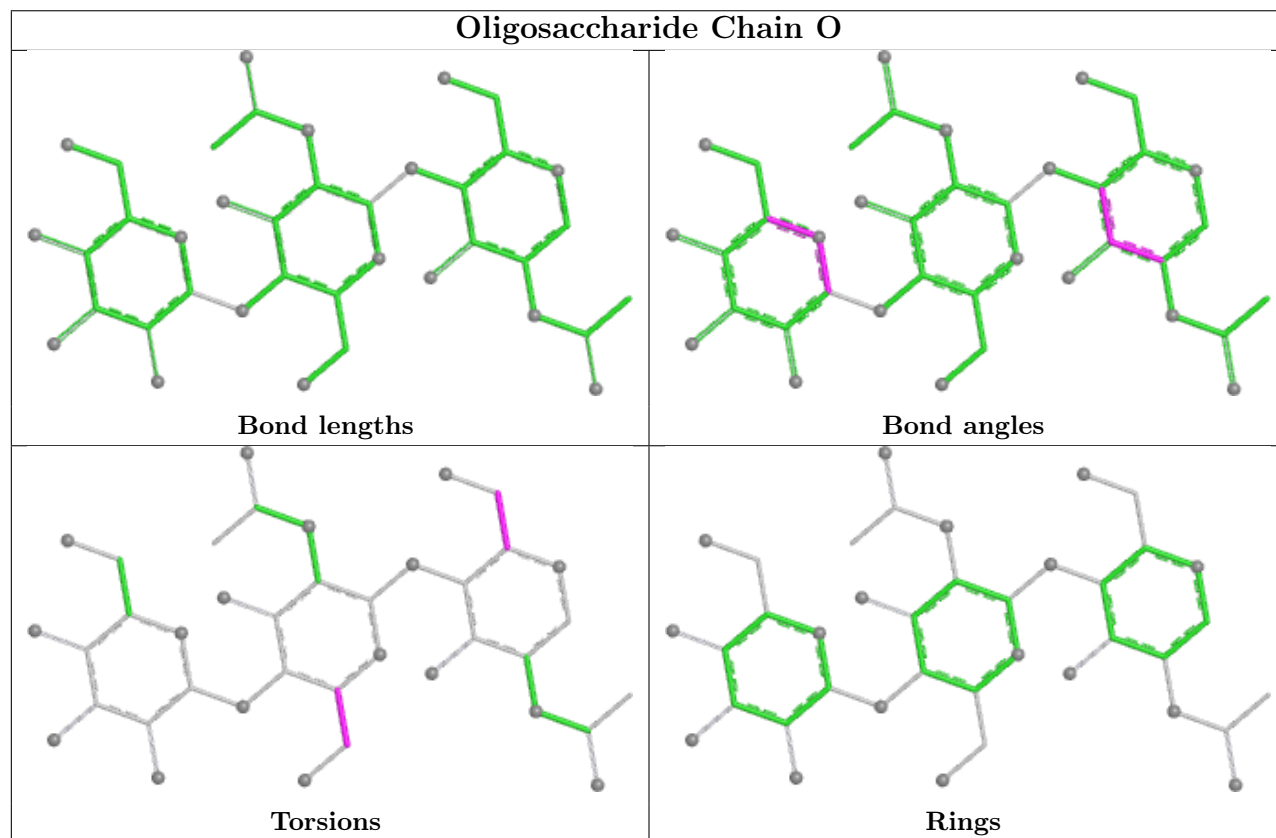
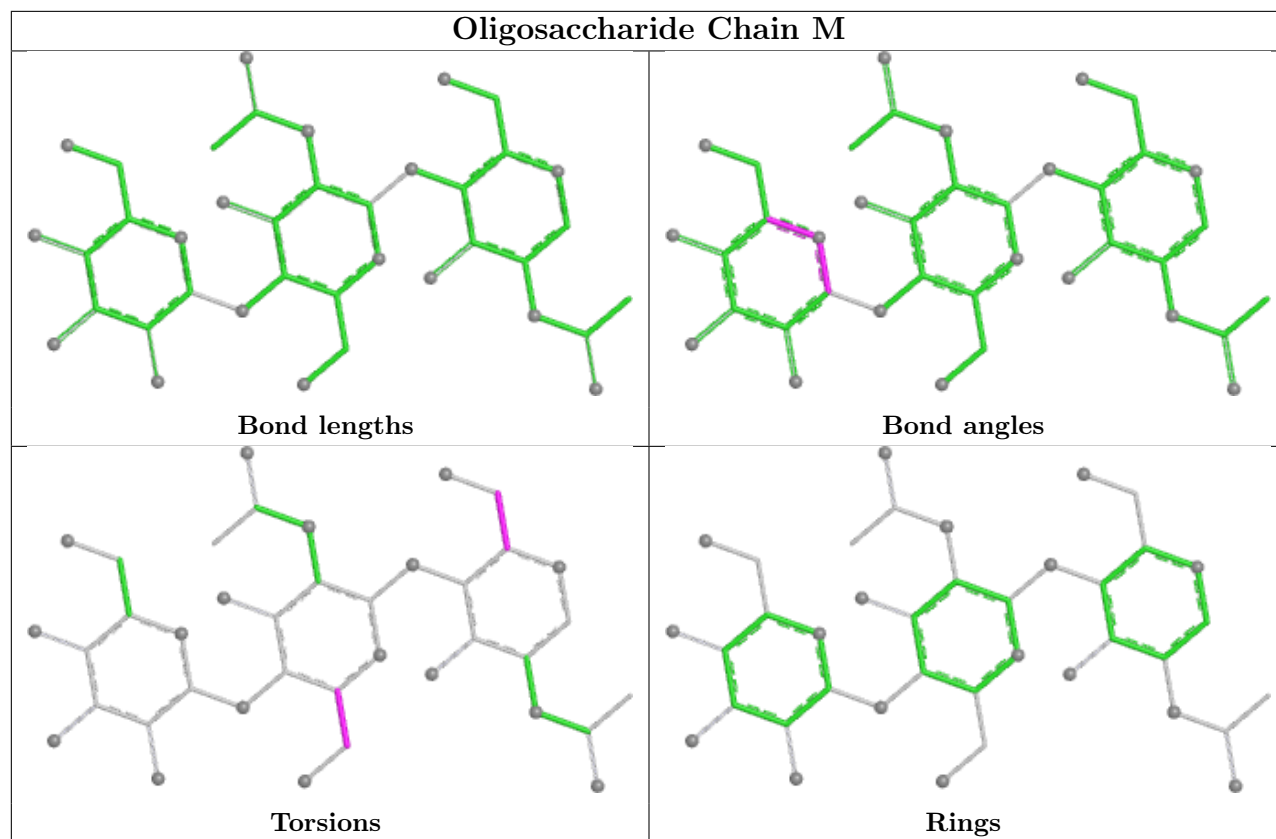


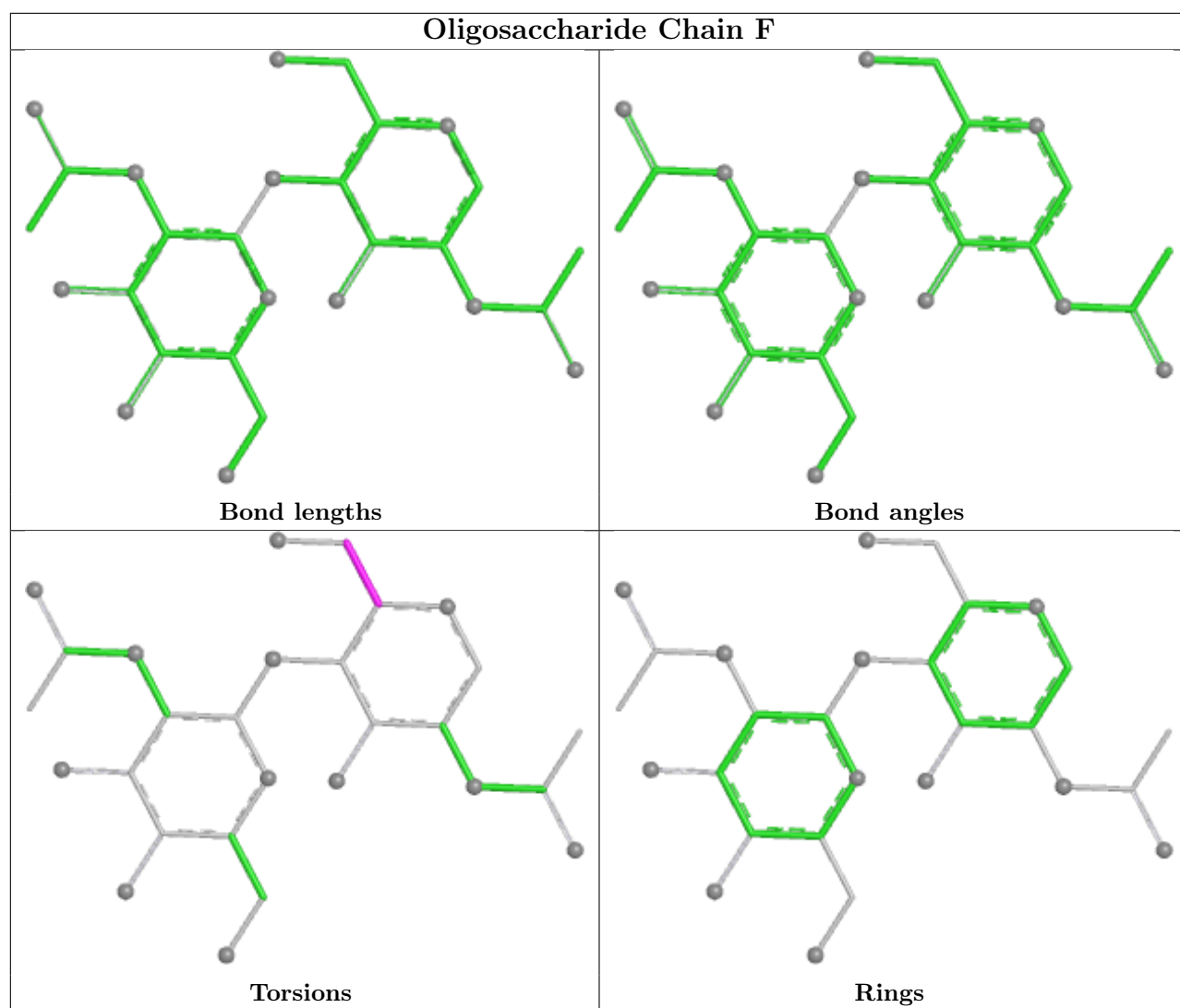


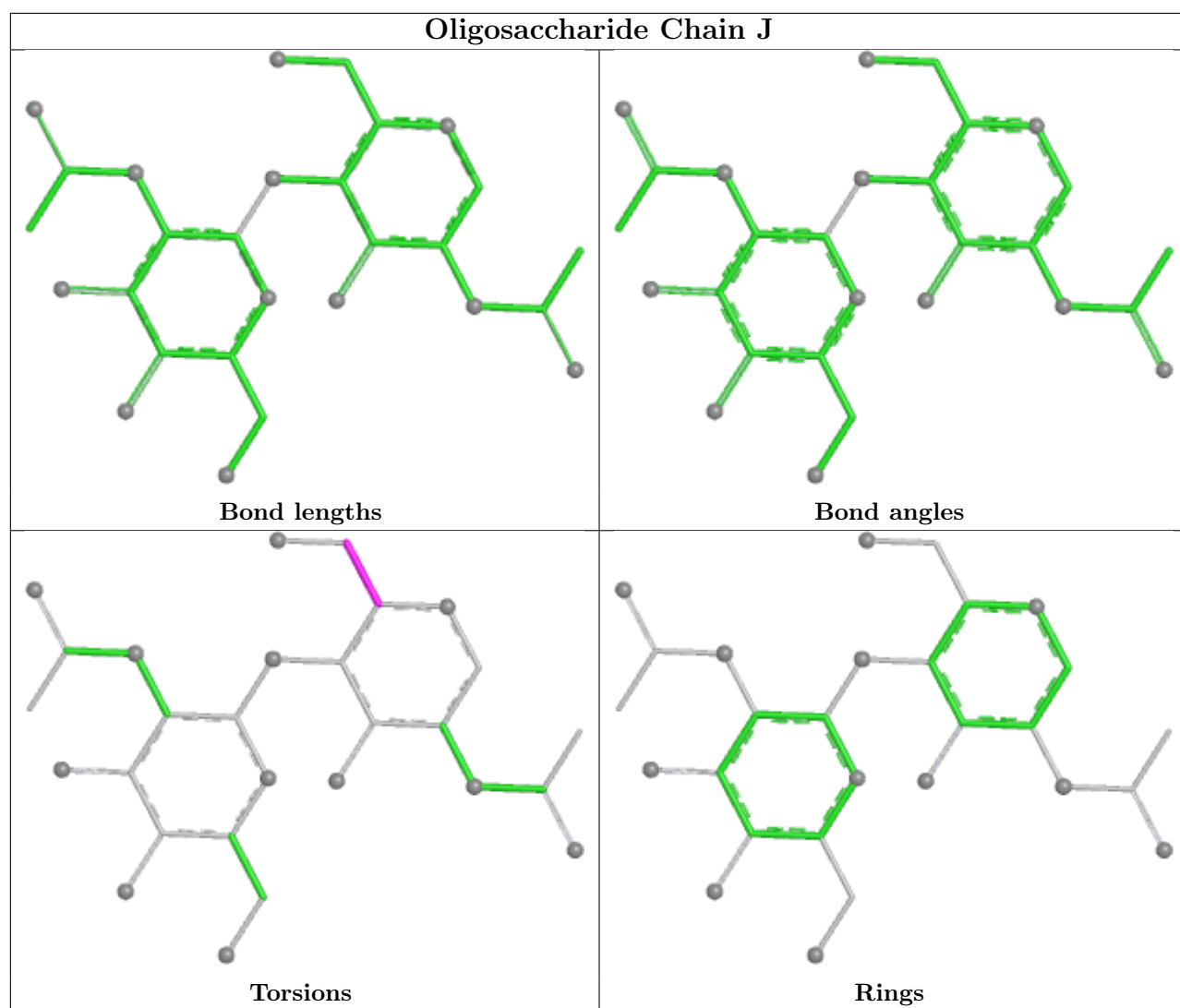


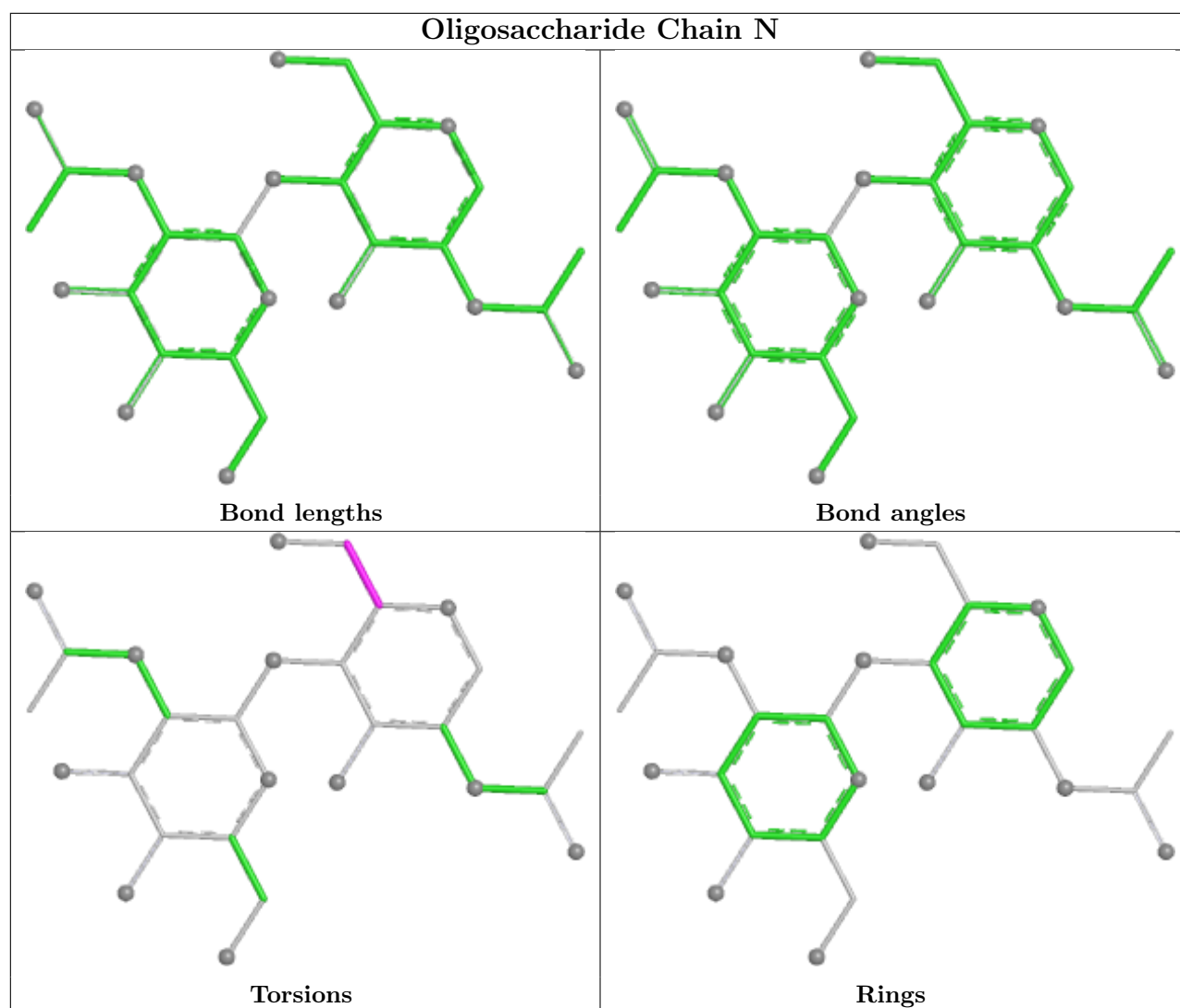












5.6 Ligand geometry [i](#)

48 ligands are modelled in this entry.

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	NAG	A	1210	1	14,14,15	0.33	0	17,19,21	0.49	0
5	NAG	A	1213	1	14,14,15	0.21	0	17,19,21	0.74	1 (5%)
5	NAG	B	1208	1	14,14,15	0.13	0	17,19,21	0.62	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	NAG	B	1216	1	14,14,15	0.50	0	17,19,21	0.41	0
5	NAG	A	1206	1	14,14,15	0.21	0	17,19,21	0.38	0
5	NAG	C	1205	1	14,14,15	0.37	0	17,19,21	0.79	1 (5%)
5	NAG	A	1204	1	14,14,15	0.21	0	17,19,21	0.37	0
5	NAG	C	1206	1	14,14,15	0.18	0	17,19,21	0.37	0
5	NAG	C	1201	1	14,14,15	0.53	0	17,19,21	0.47	0
5	NAG	A	1215	1	14,14,15	0.39	0	17,19,21	0.34	0
5	NAG	A	1212	1	14,14,15	0.27	0	17,19,21	0.38	0
5	NAG	A	1201	1	14,14,15	0.53	0	17,19,21	0.48	0
5	NAG	A	1208	1	14,14,15	0.13	0	17,19,21	0.61	0
5	NAG	B	1202	1	14,14,15	0.62	0	17,19,21	0.48	0
5	NAG	B	1209	1	14,14,15	0.76	1 (7%)	17,19,21	0.45	0
5	NAG	B	1201	1	14,14,15	0.53	0	17,19,21	0.48	0
5	NAG	C	1203	1	14,14,15	0.27	0	17,19,21	0.42	0
5	NAG	A	1203	1	14,14,15	0.28	0	17,19,21	0.42	0
5	NAG	C	1202	1	14,14,15	0.60	0	17,19,21	0.47	0
5	NAG	C	1209	1	14,14,15	0.77	1 (7%)	17,19,21	0.45	0
5	NAG	A	1205	1	14,14,15	0.35	0	17,19,21	0.80	1 (5%)
5	NAG	A	1209	1	14,14,15	0.77	1 (7%)	17,19,21	0.44	0
5	NAG	B	1203	1	14,14,15	0.27	0	17,19,21	0.42	0
5	NAG	B	1211	1	14,14,15	1.28	1 (7%)	17,19,21	1.69	2 (11%)
5	NAG	C	1210	1	14,14,15	0.33	0	17,19,21	0.48	0
5	NAG	C	1213	1	14,14,15	0.21	0	17,19,21	0.75	1 (5%)
5	NAG	B	1207	1	14,14,15	0.29	0	17,19,21	0.84	1 (5%)
5	NAG	B	1212	1	14,14,15	0.26	0	17,19,21	0.39	0
5	NAG	A	1211	1	14,14,15	1.31	1 (7%)	17,19,21	1.69	2 (11%)
5	NAG	B	1214	1	14,14,15	0.31	0	17,19,21	0.65	1 (5%)
5	NAG	C	1208	1	14,14,15	0.13	0	17,19,21	0.63	0
5	NAG	B	1205	1	14,14,15	0.36	0	17,19,21	0.81	1 (5%)
5	NAG	A	1202	1	14,14,15	0.60	0	17,19,21	0.47	0
5	NAG	B	1210	1	14,14,15	0.33	0	17,19,21	0.47	0
5	NAG	A	1216	1	14,14,15	0.50	0	17,19,21	0.41	0
5	NAG	B	1206	1	14,14,15	0.21	0	17,19,21	0.37	0
5	NAG	C	1211	1	14,14,15	1.31	1 (7%)	17,19,21	1.71	2 (11%)
5	NAG	C	1212	1	14,14,15	0.28	0	17,19,21	0.37	0
5	NAG	C	1215	1	14,14,15	0.38	0	17,19,21	0.34	0
5	NAG	C	1214	1	14,14,15	0.33	0	17,19,21	0.65	1 (5%)
5	NAG	C	1207	1	14,14,15	0.29	0	17,19,21	0.83	1 (5%)
5	NAG	A	1207	1	14,14,15	0.28	0	17,19,21	0.84	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	NAG	B	1213	1	14,14,15	0.22	0	17,19,21	0.75	1 (5%)
5	NAG	B	1204	1	14,14,15	0.22	0	17,19,21	0.38	0
5	NAG	A	1214	1	14,14,15	0.32	0	17,19,21	0.66	1 (5%)
5	NAG	B	1215	1	14,14,15	0.38	0	17,19,21	0.34	0
5	NAG	C	1204	1	14,14,15	0.22	0	17,19,21	0.38	0
5	NAG	C	1216	1	14,14,15	0.52	0	17,19,21	0.41	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
5	NAG	A	1210	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1213	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1208	1	-	4/6/23/26	0/1/1/1
5	NAG	B	1216	1	-	3/6/23/26	0/1/1/1
5	NAG	A	1206	1	-	3/6/23/26	0/1/1/1
5	NAG	C	1205	1	-	4/6/23/26	0/1/1/1
5	NAG	A	1204	1	-	0/6/23/26	0/1/1/1
5	NAG	C	1206	1	-	3/6/23/26	0/1/1/1
5	NAG	C	1201	1	-	1/6/23/26	0/1/1/1
5	NAG	A	1215	1	-	3/6/23/26	0/1/1/1
5	NAG	A	1212	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1201	1	-	1/6/23/26	0/1/1/1
5	NAG	A	1208	1	-	4/6/23/26	0/1/1/1
5	NAG	B	1202	1	-	3/6/23/26	0/1/1/1
5	NAG	B	1209	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1201	1	-	1/6/23/26	0/1/1/1
5	NAG	C	1203	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1203	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1202	1	-	3/6/23/26	0/1/1/1
5	NAG	C	1209	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1205	1	-	4/6/23/26	0/1/1/1
5	NAG	A	1209	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1203	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1211	1	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	C	1210	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1213	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1207	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1212	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1211	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1214	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1208	1	-	4/6/23/26	0/1/1/1
5	NAG	B	1205	1	-	4/6/23/26	0/1/1/1
5	NAG	A	1202	1	-	3/6/23/26	0/1/1/1
5	NAG	B	1210	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1216	1	-	3/6/23/26	0/1/1/1
5	NAG	B	1206	1	-	3/6/23/26	0/1/1/1
5	NAG	C	1211	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1212	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1215	1	-	3/6/23/26	0/1/1/1
5	NAG	C	1214	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1207	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1207	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1213	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1204	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1214	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1215	1	-	3/6/23/26	0/1/1/1
5	NAG	C	1204	1	-	0/6/23/26	0/1/1/1
5	NAG	C	1216	1	-	3/6/23/26	0/1/1/1

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	C	1211	NAG	C1-C2	4.51	1.58	1.52
5	A	1211	NAG	C1-C2	4.50	1.58	1.52
5	B	1211	NAG	C1-C2	4.37	1.58	1.52
5	C	1209	NAG	O5-C1	-2.53	1.39	1.43
5	A	1209	NAG	O5-C1	-2.50	1.39	1.43

The worst 5 of 18 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	C	1211	NAG	C1-O5-C5	5.71	119.84	112.19

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	1211	NAG	C1-O5-C5	5.67	119.78	112.19
5	B	1211	NAG	C1-O5-C5	5.66	119.78	112.19
5	C	1211	NAG	C4-C3-C2	3.59	116.28	111.02
5	A	1211	NAG	C4-C3-C2	3.56	116.24	111.02

There are no chirality outliers.

5 of 105 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	C	1214	NAG	C4-C5-C6-O6
5	A	1214	NAG	C4-C5-C6-O6
5	B	1214	NAG	C4-C5-C6-O6
5	A	1208	NAG	O5-C5-C6-O6
5	A	1209	NAG	O5-C5-C6-O6

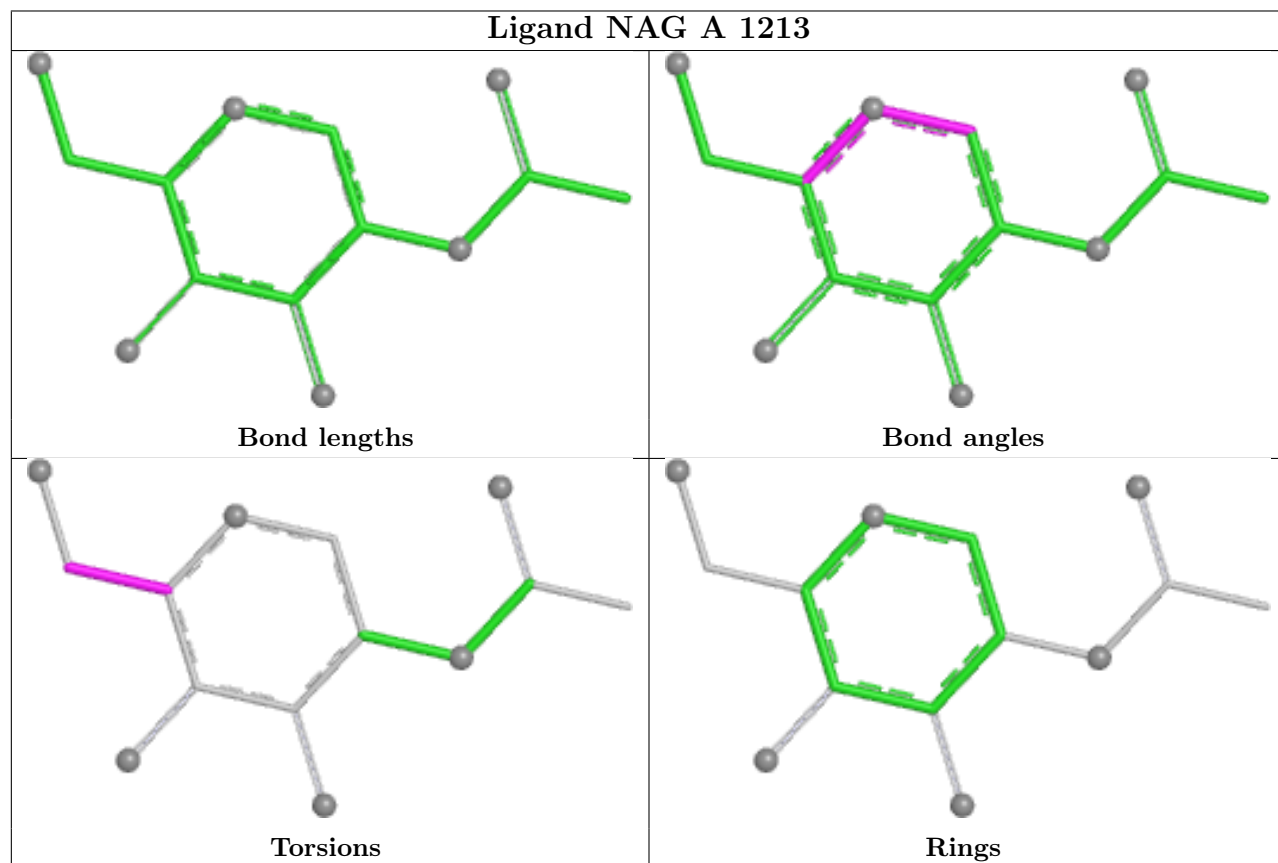
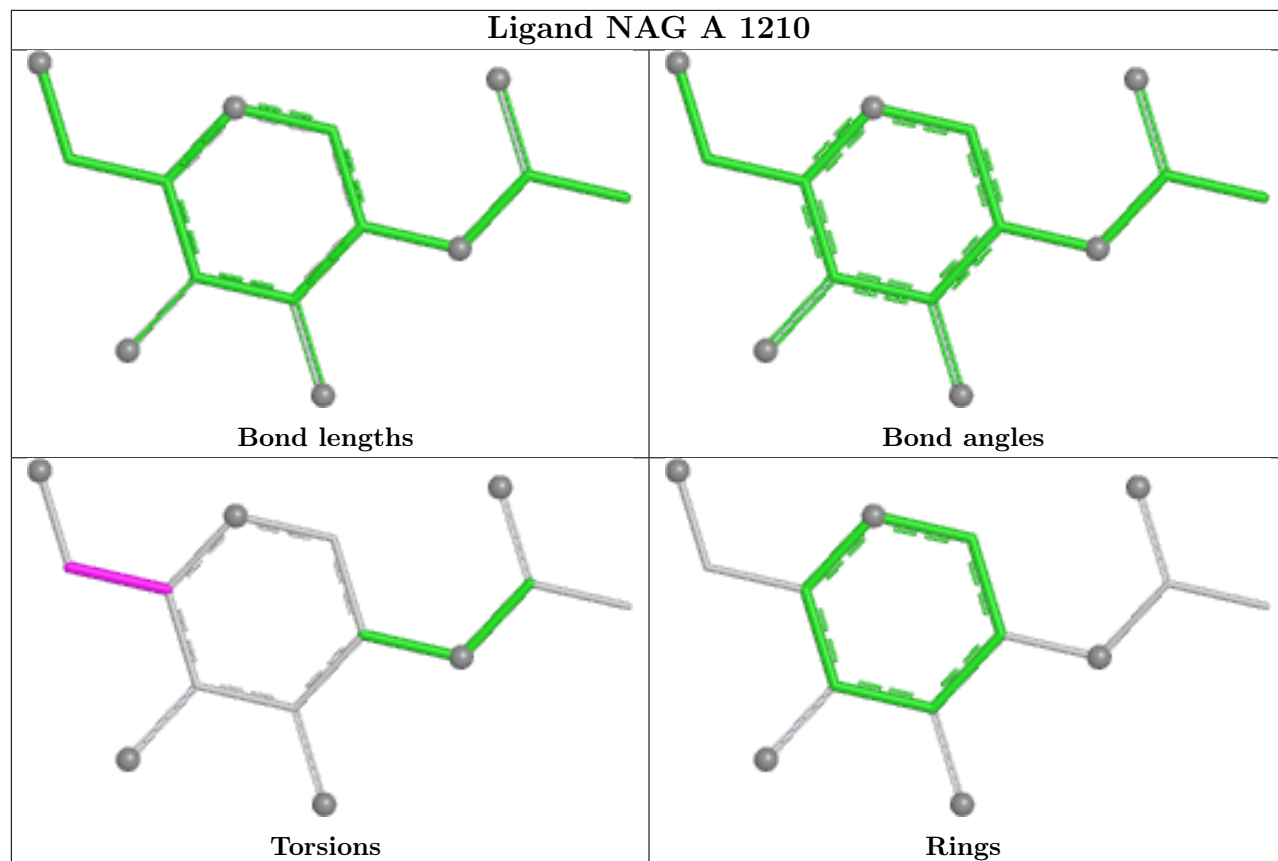
There are no ring outliers.

11 monomers are involved in 44 short contacts:

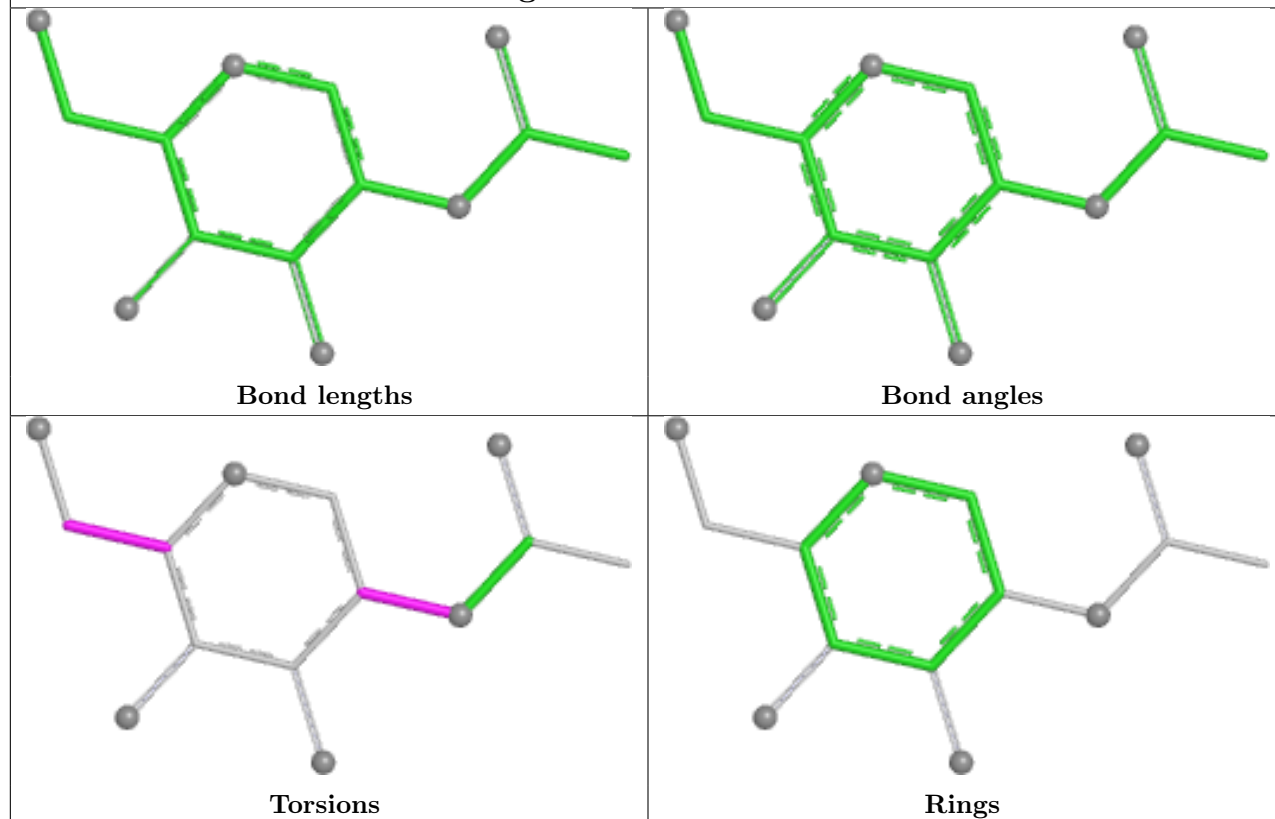
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	1206	NAG	1	0
5	C	1205	NAG	1	0
5	C	1201	NAG	8	0
5	A	1201	NAG	8	0
5	B	1202	NAG	6	0
5	B	1201	NAG	7	0
5	C	1202	NAG	6	0
5	A	1205	NAG	1	0
5	B	1205	NAG	1	0
5	A	1202	NAG	4	0
5	A	1216	NAG	1	0

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 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

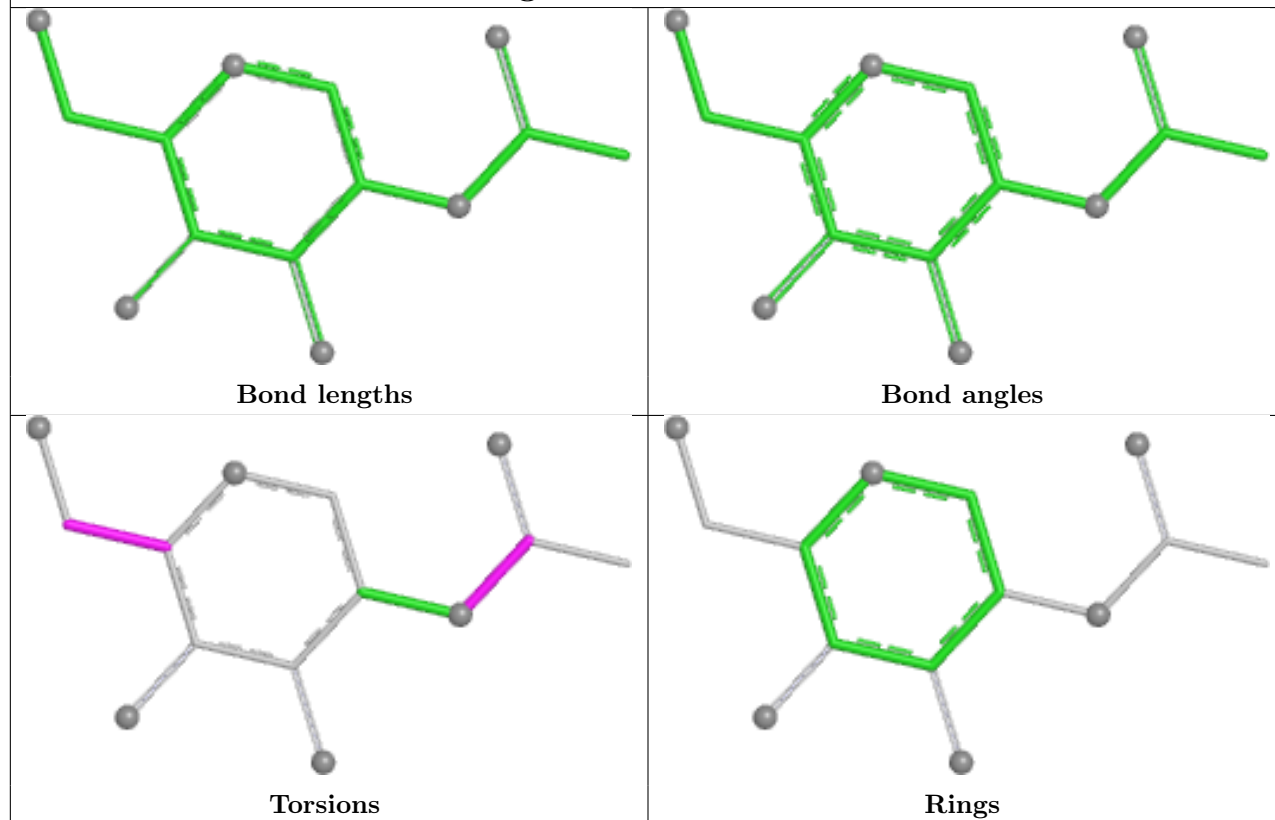
equivalents in the CSD to analyse the geometry.



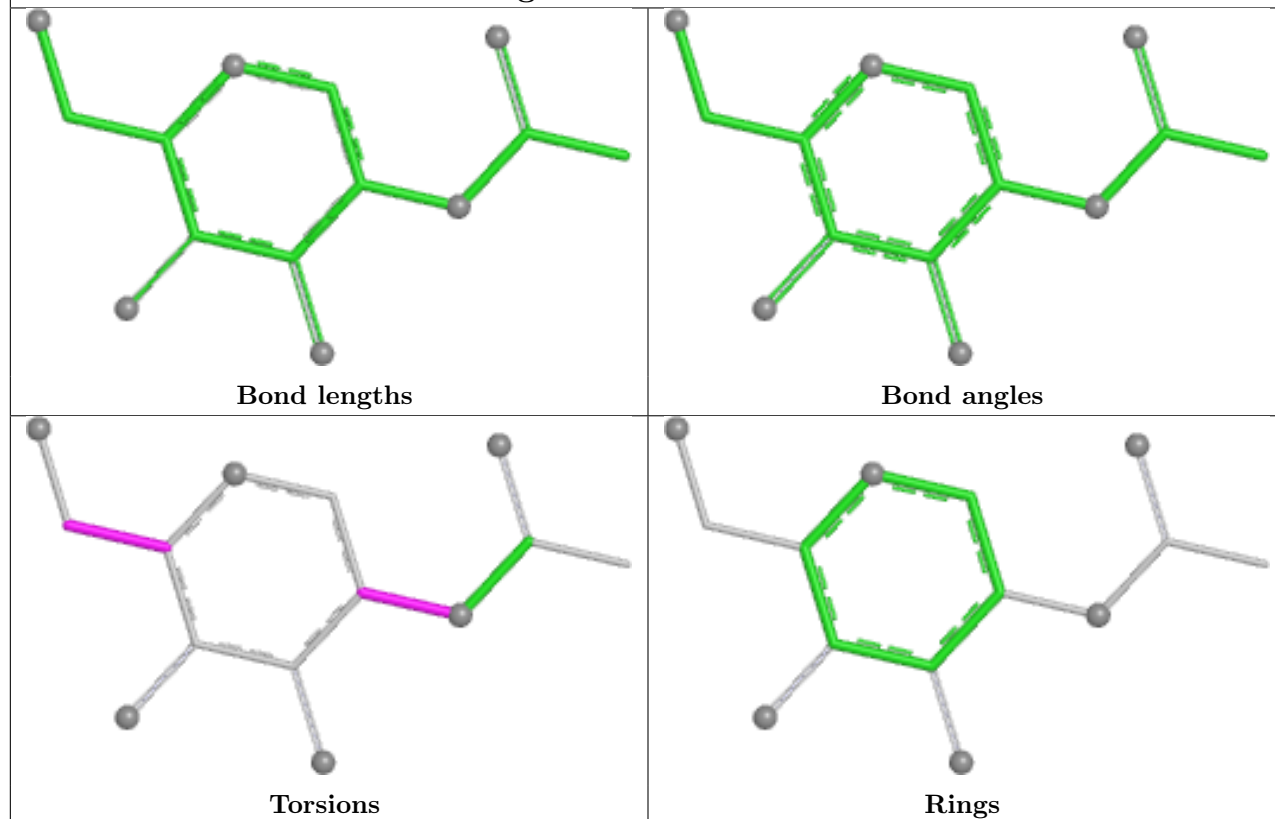
Ligand NAG B 1208



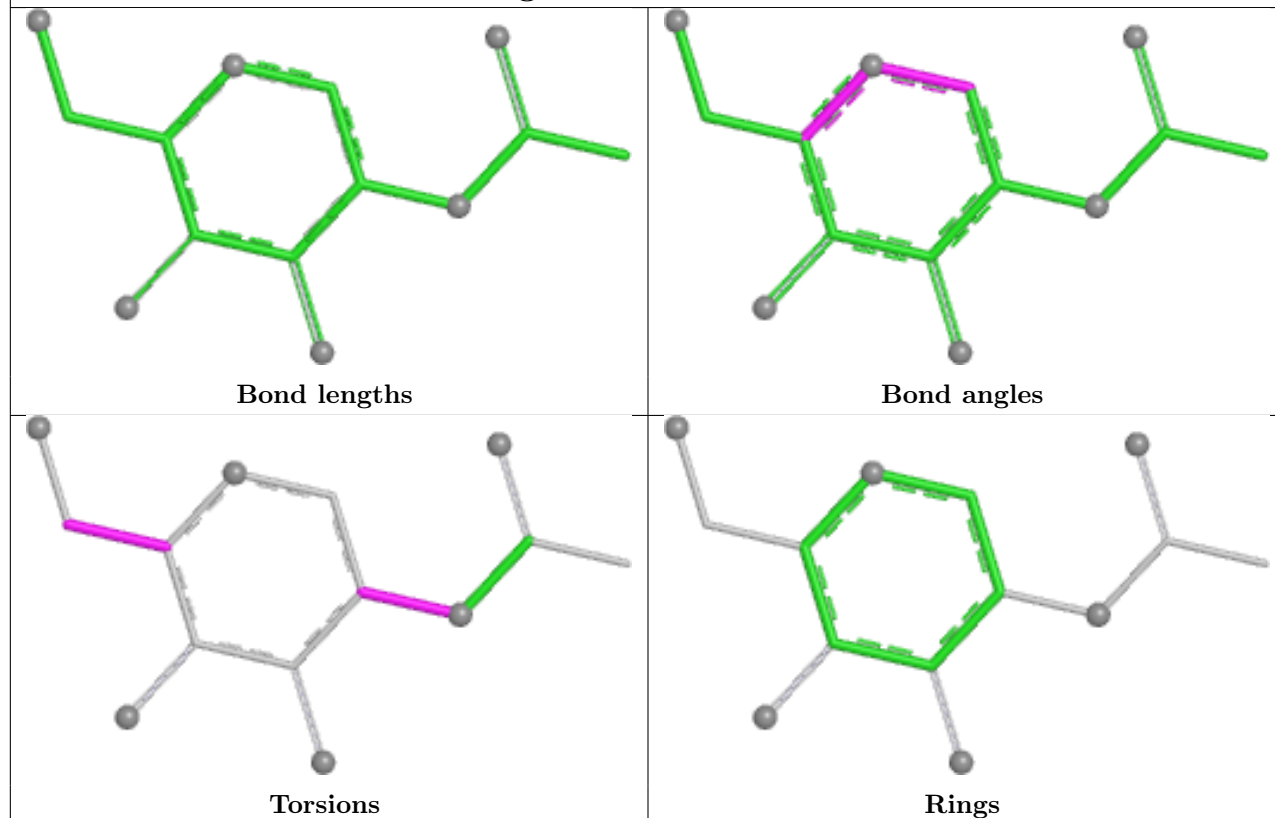
Ligand NAG B 1216

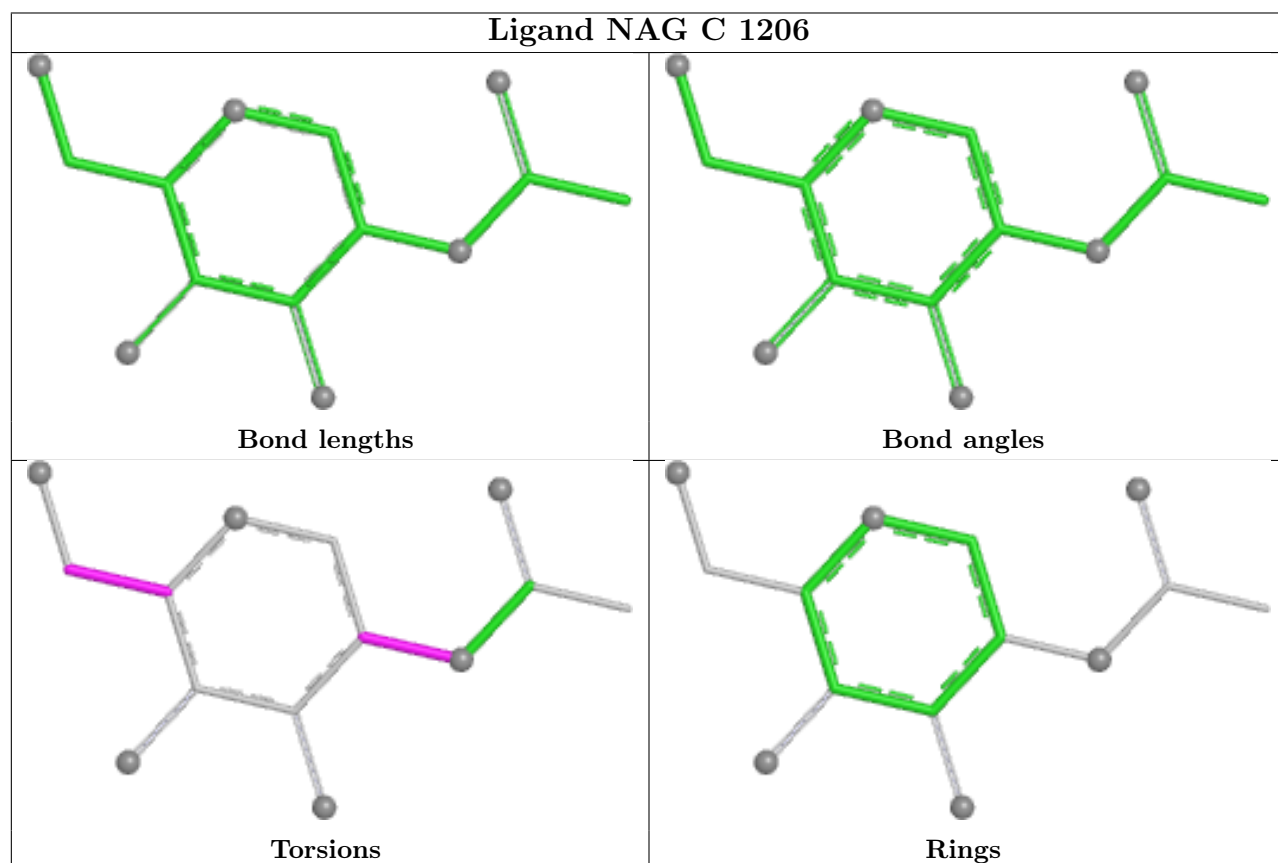
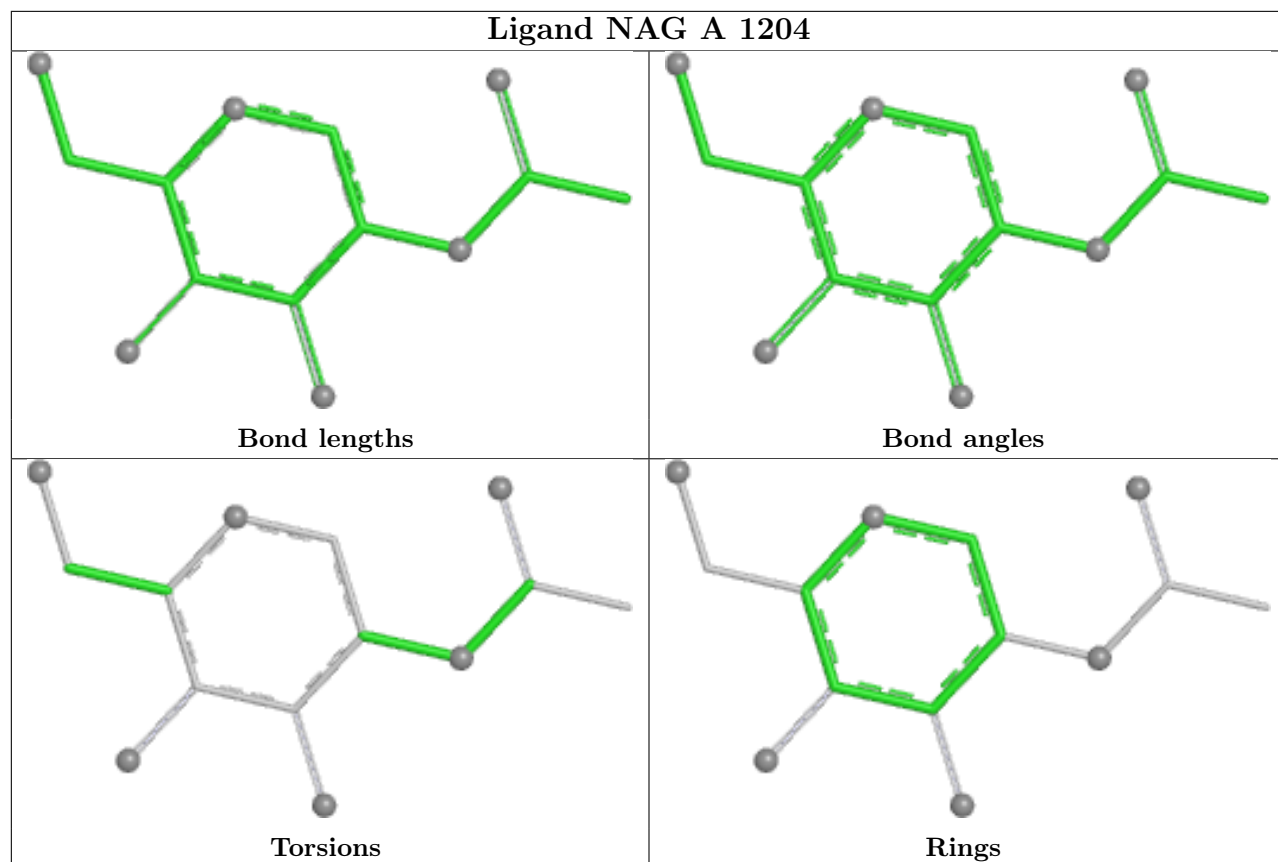


Ligand NAG A 1206

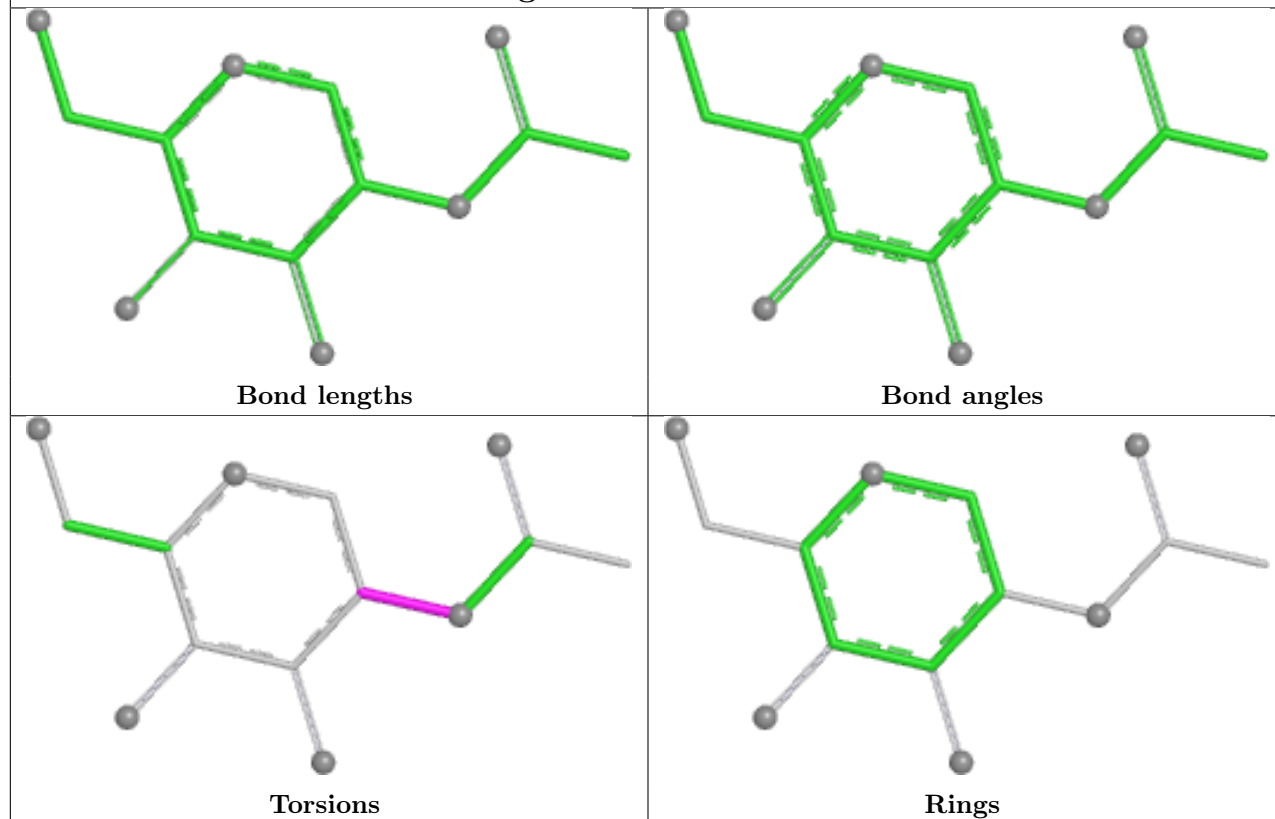


Ligand NAG C 1205

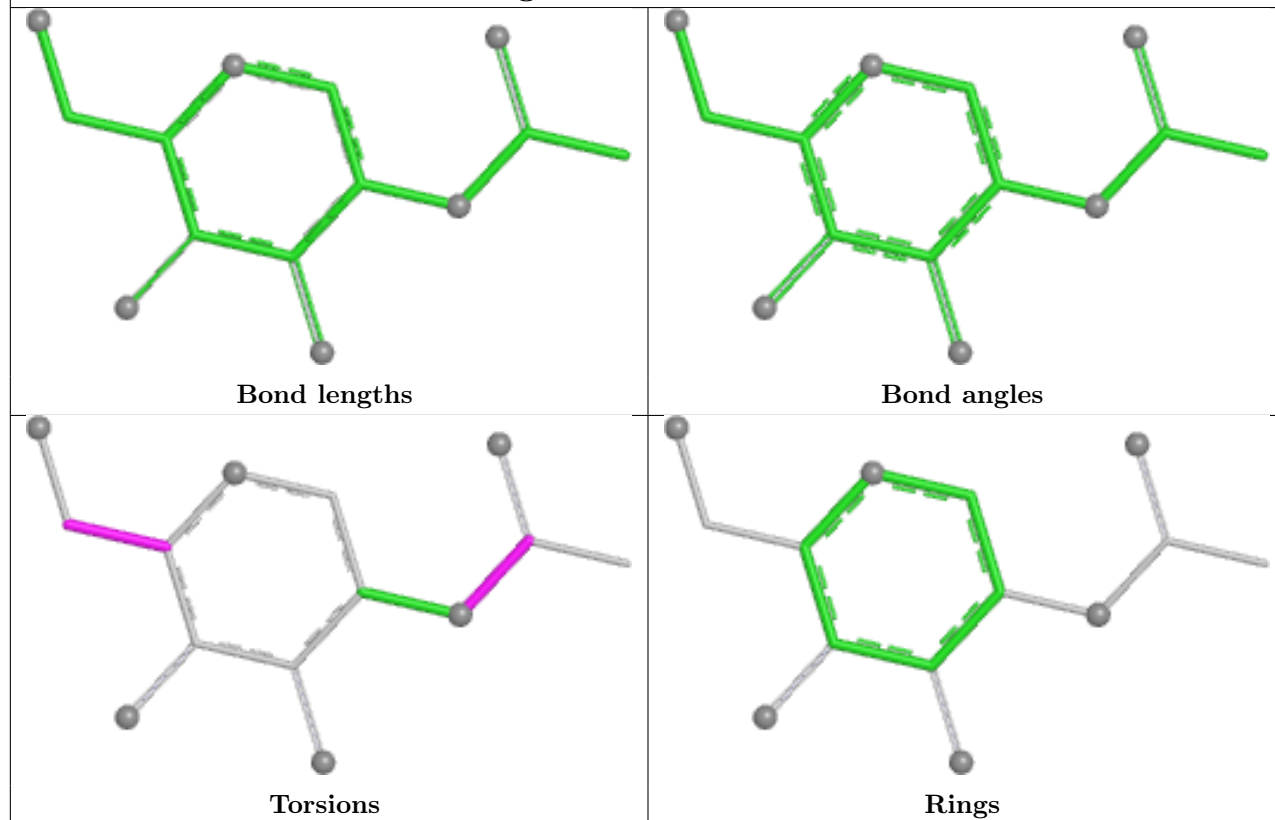




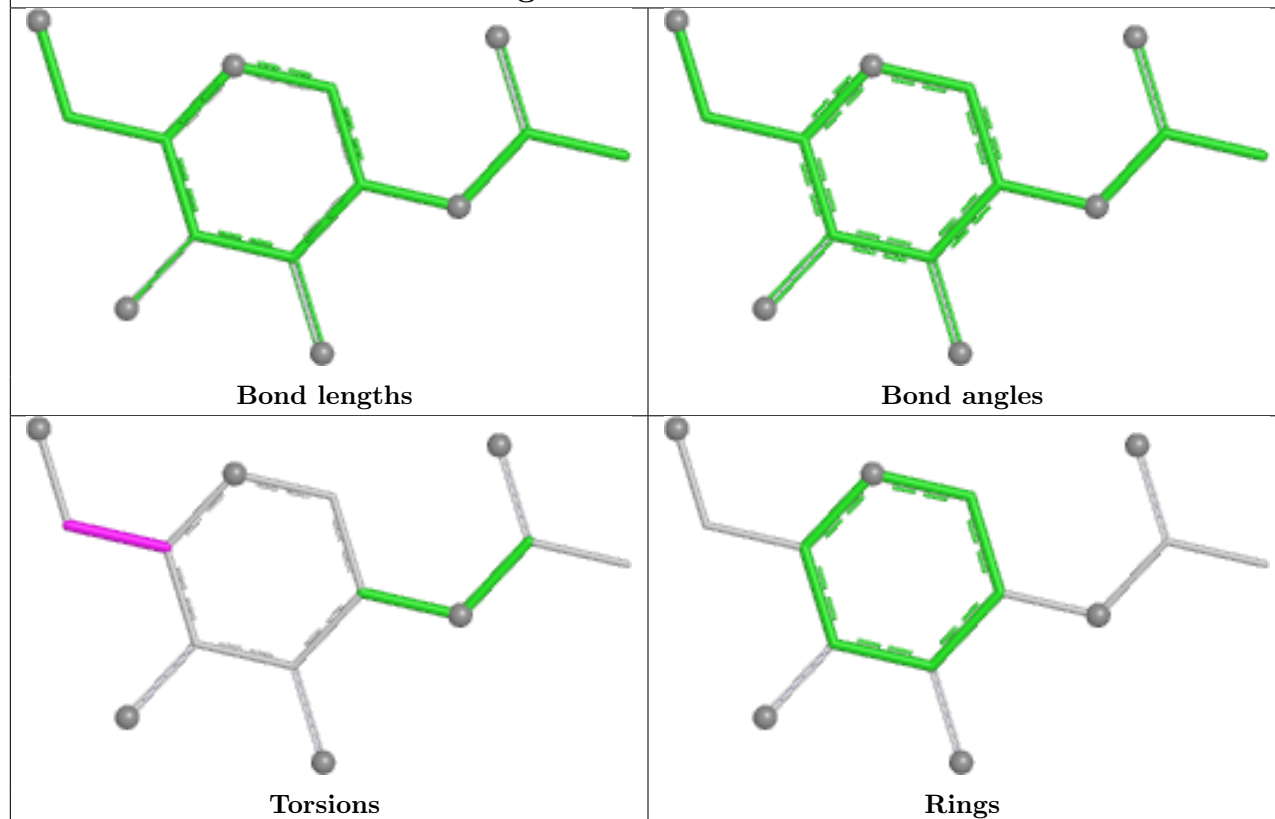
Ligand NAG C 1201



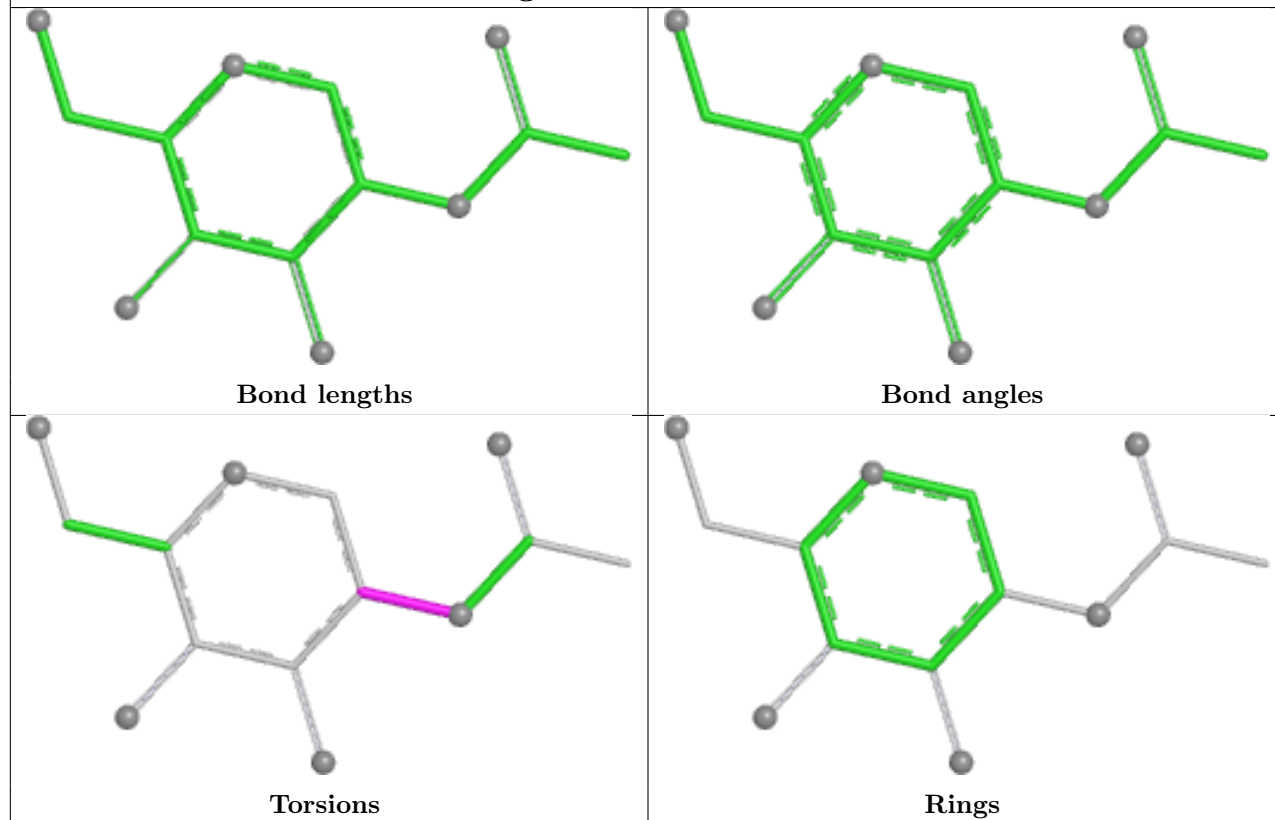
Ligand NAG A 1215



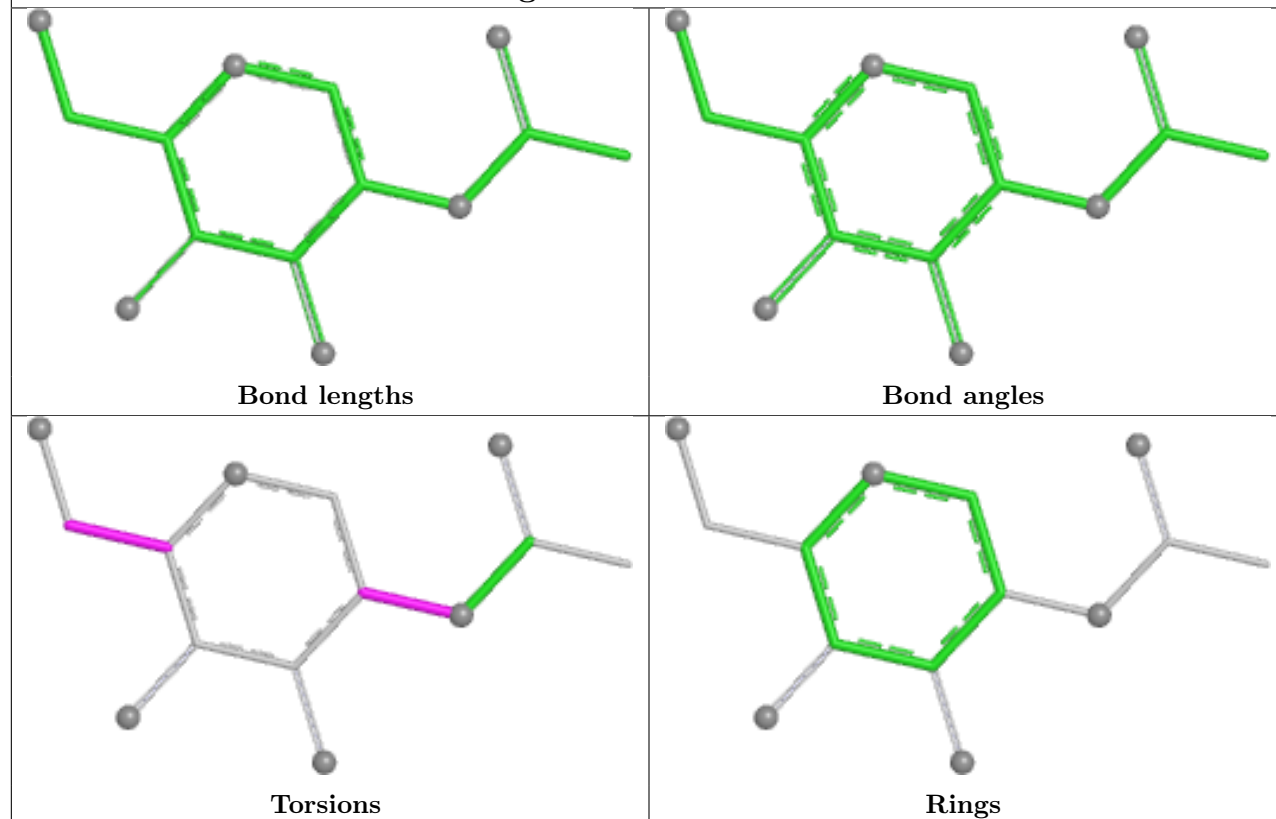
Ligand NAG A 1212



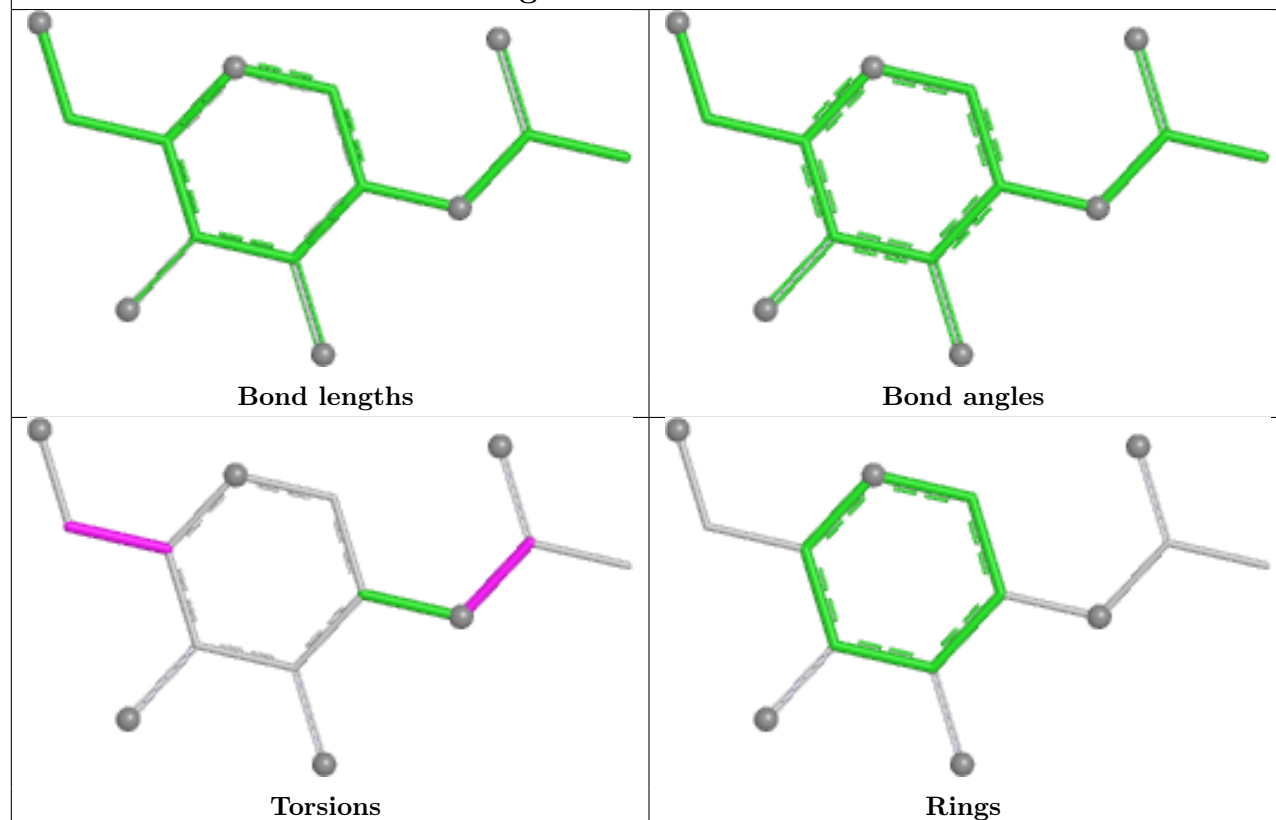
Ligand NAG A 1201



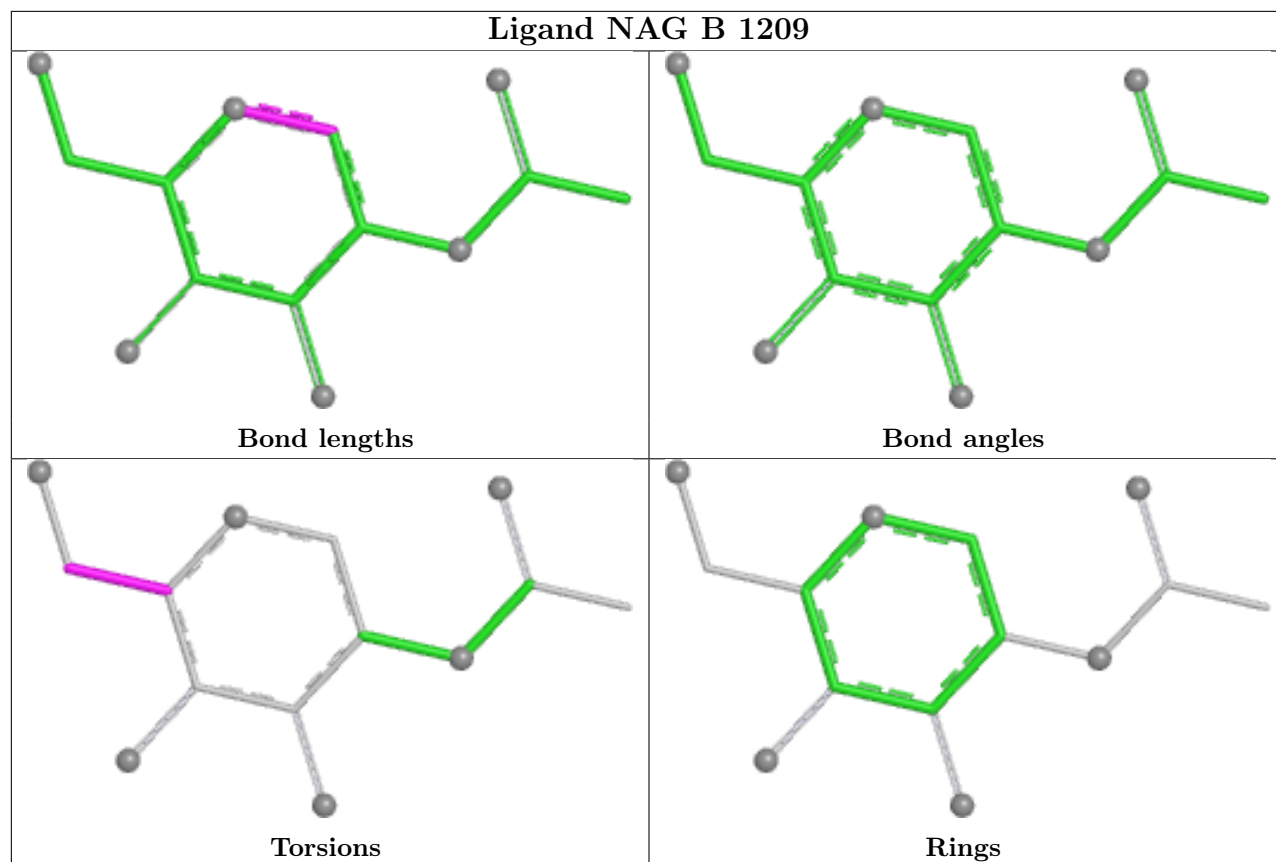
Ligand NAG A 1208



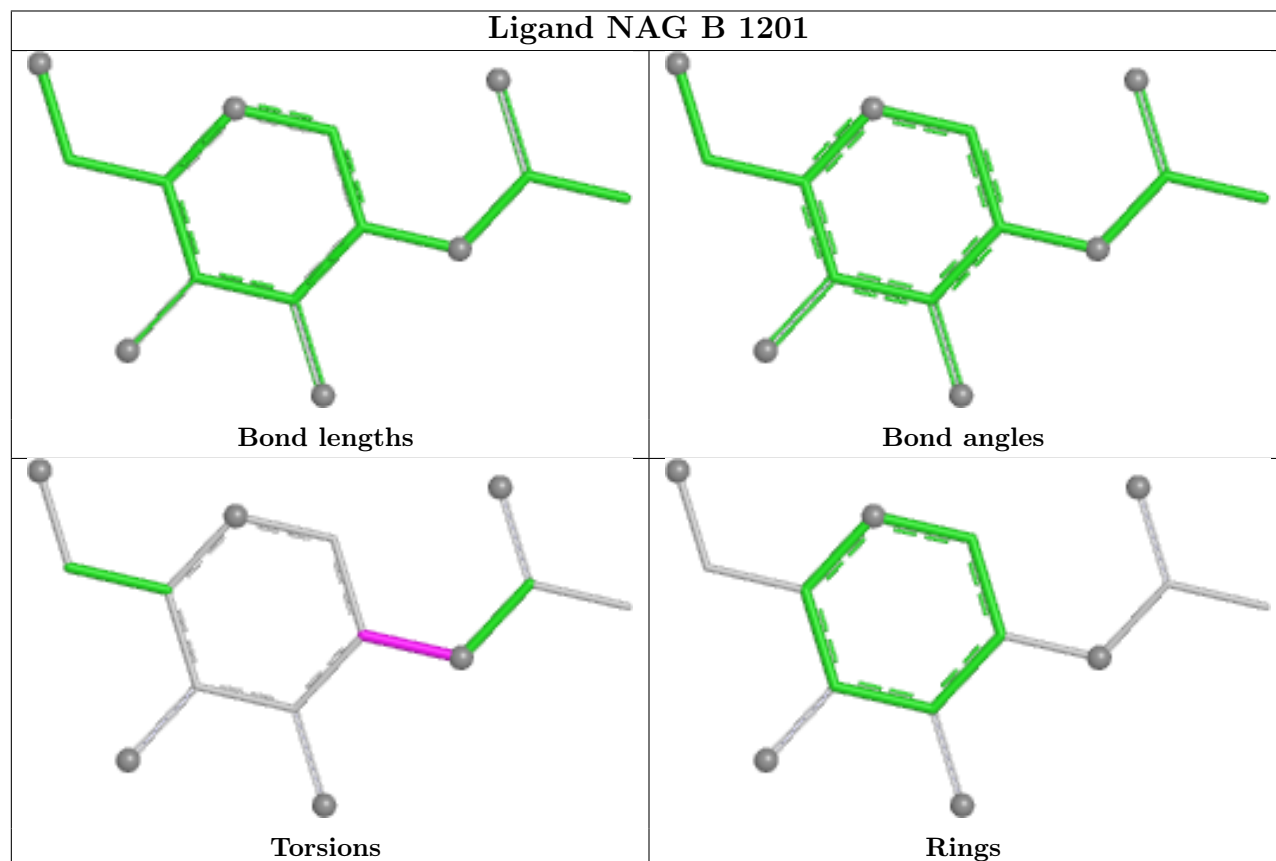
Ligand NAG B 1202



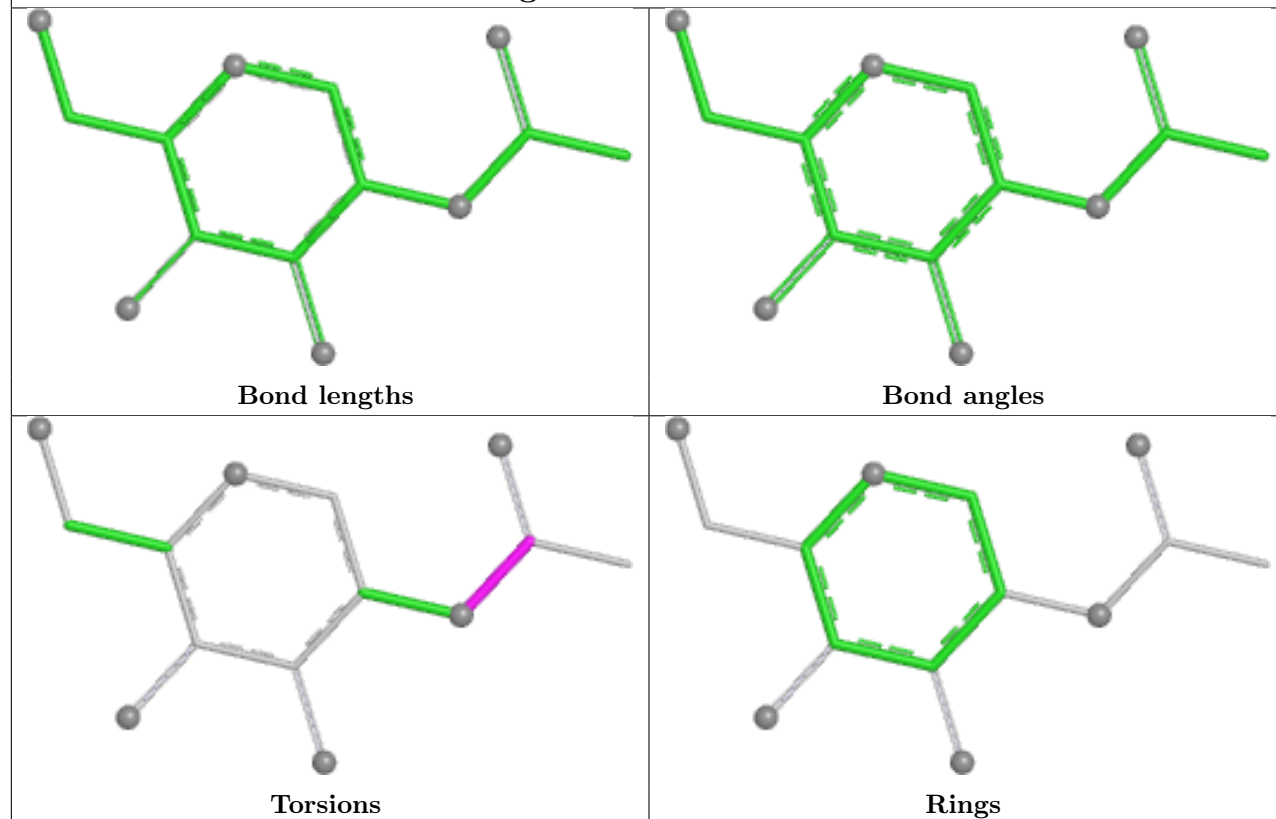
Ligand NAG B 1209



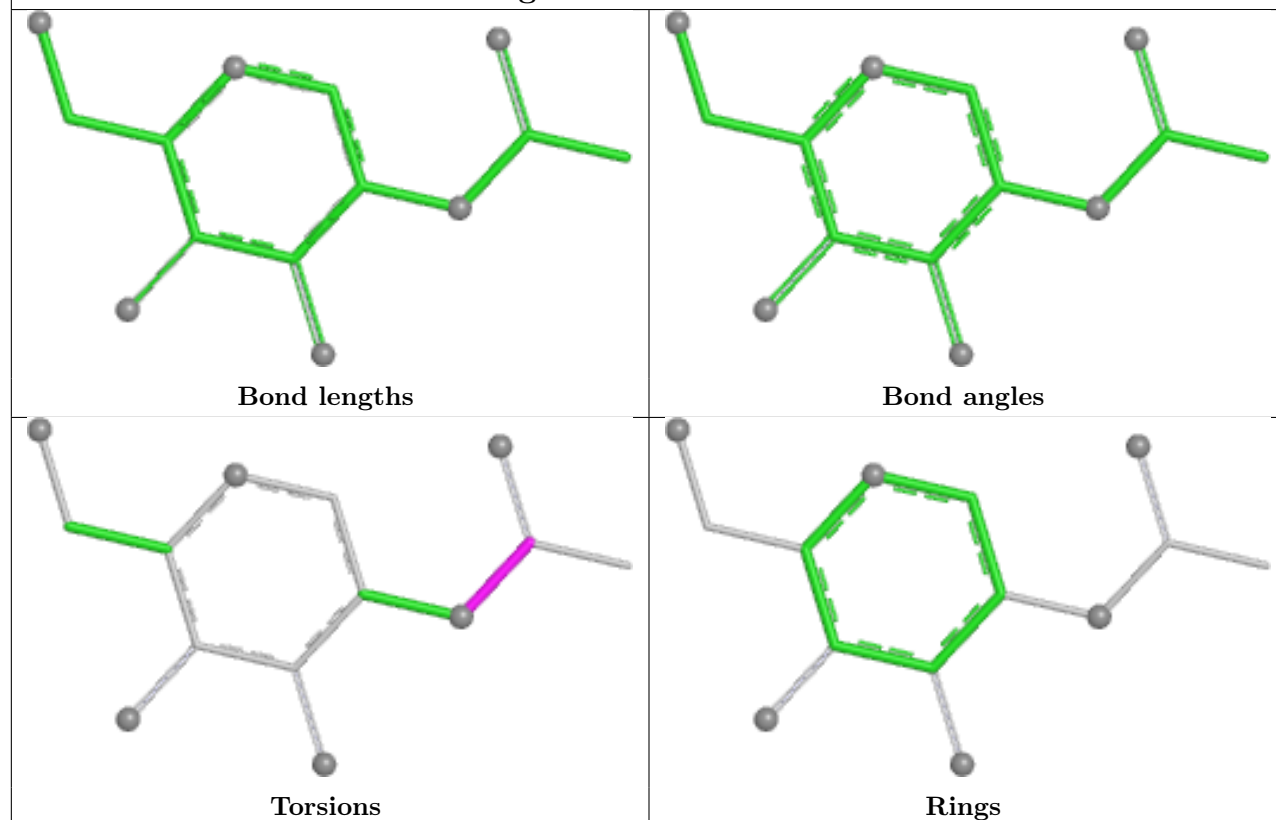
Ligand NAG B 1201

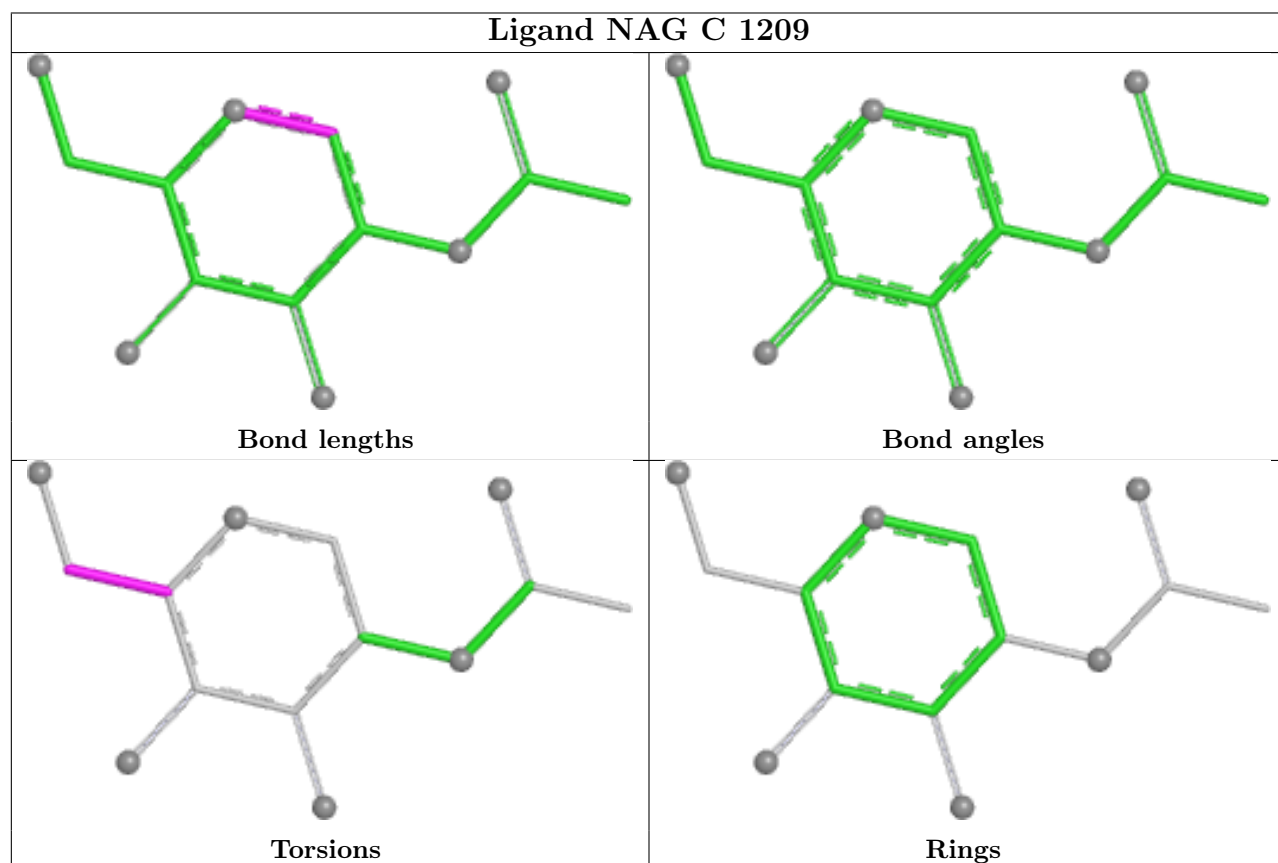
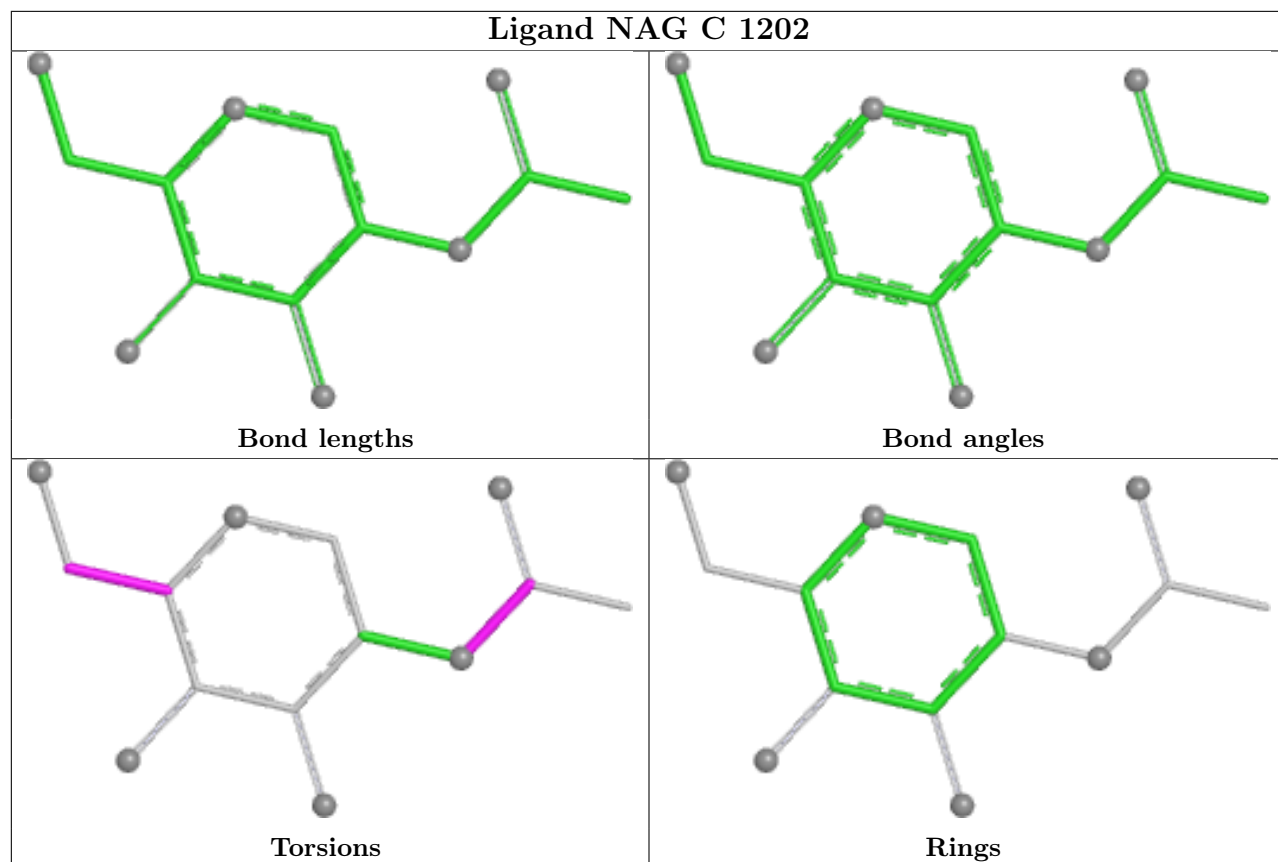


Ligand NAG C 1203

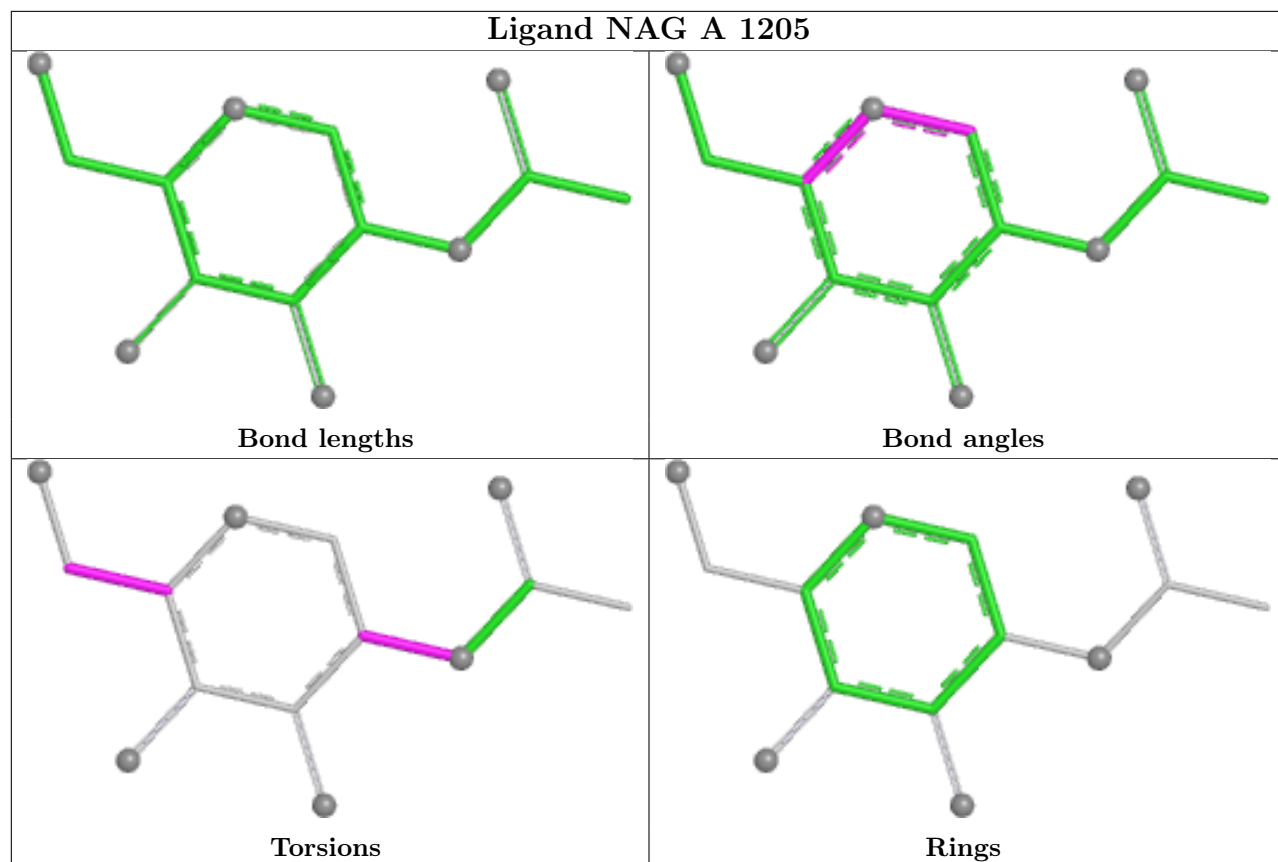


Ligand NAG A 1203

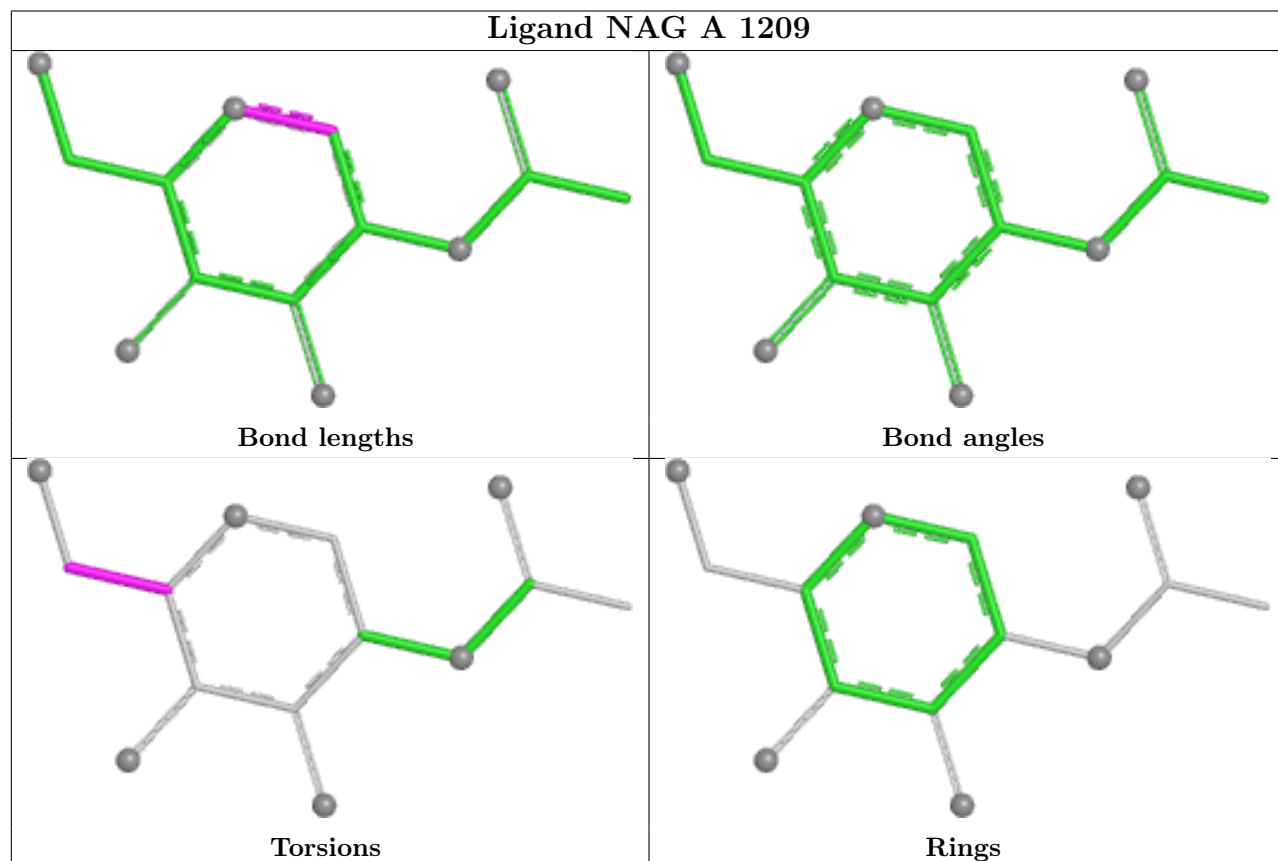




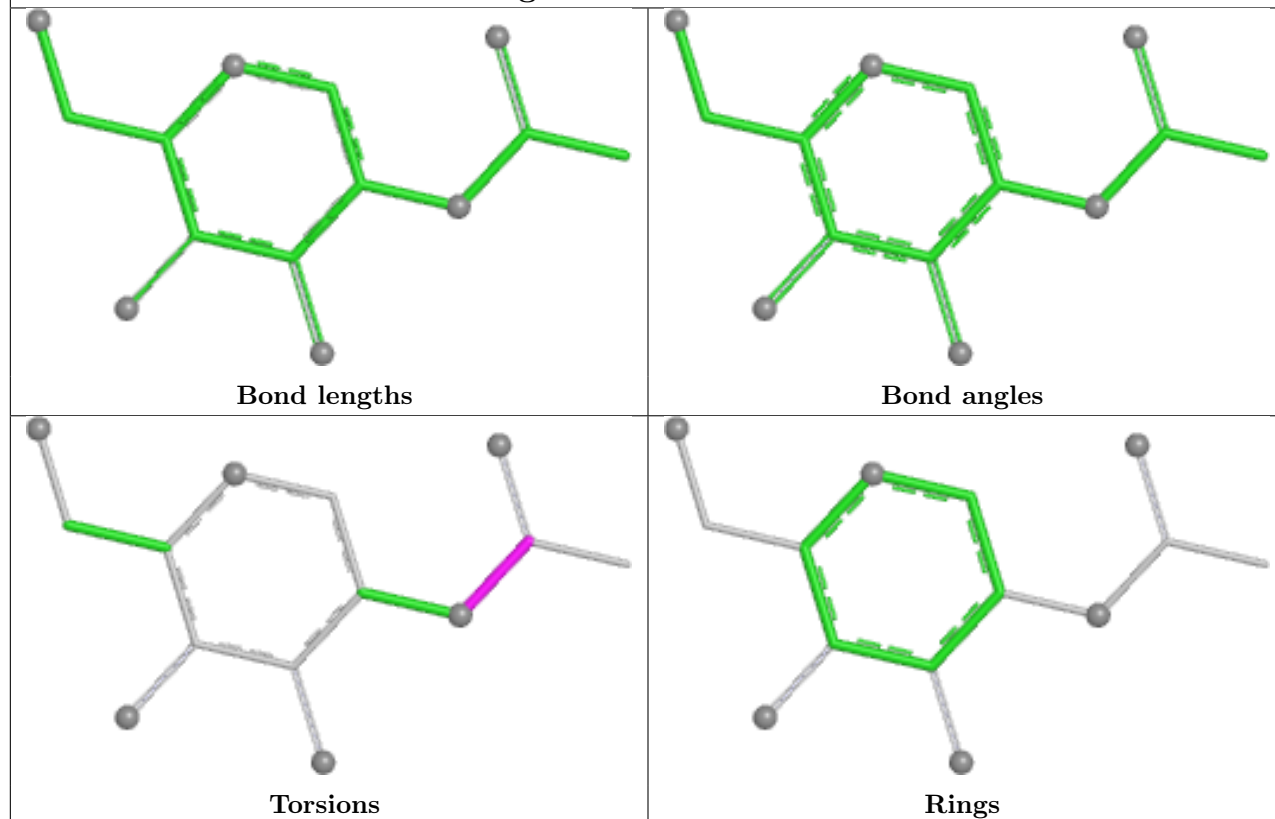
Ligand NAG A 1205



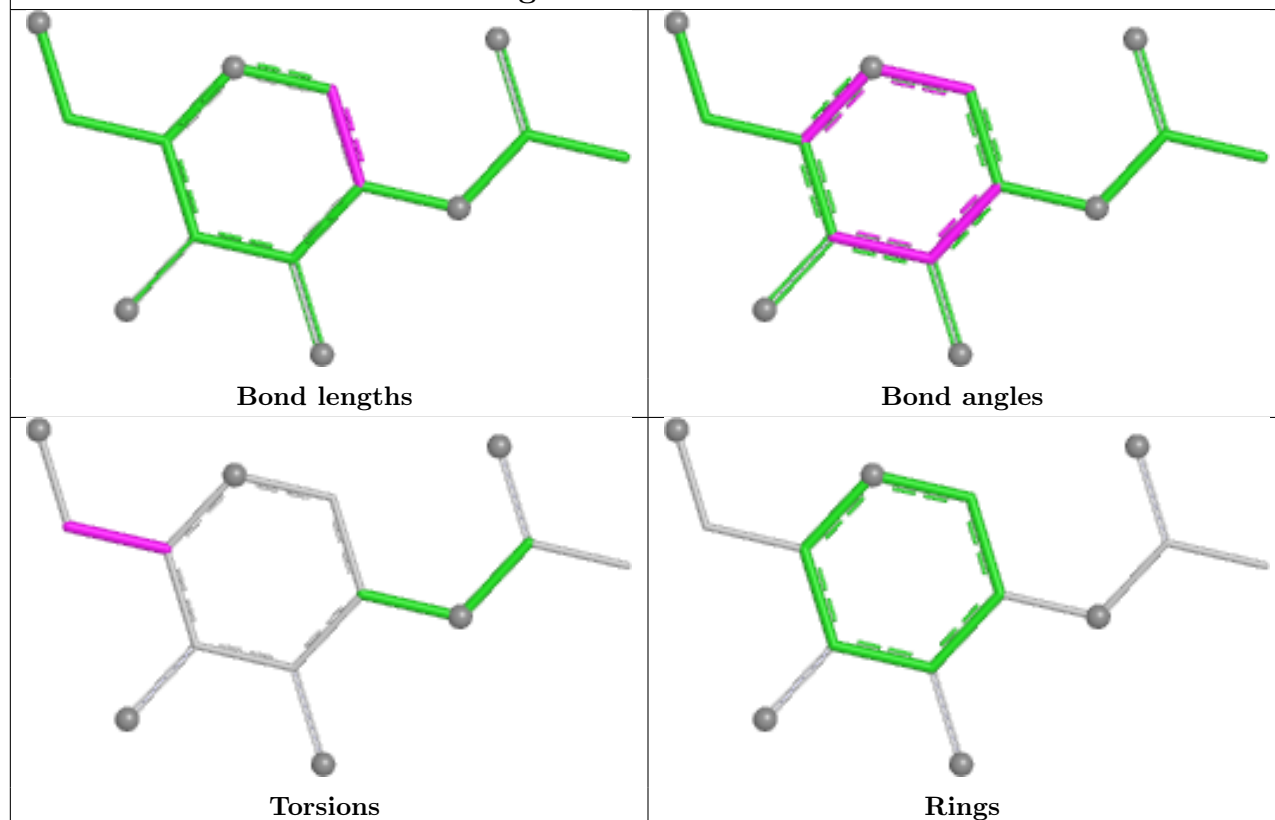
Ligand NAG A 1209



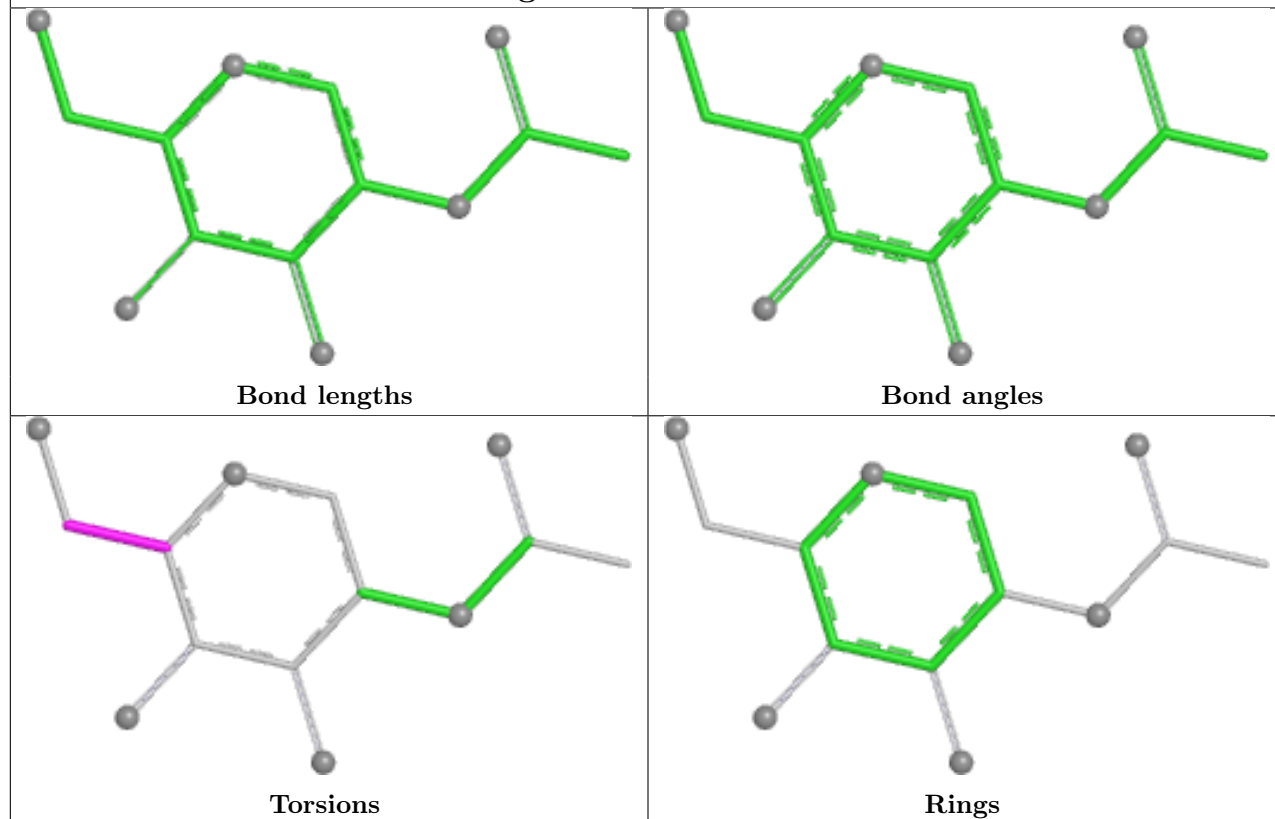
Ligand NAG B 1203



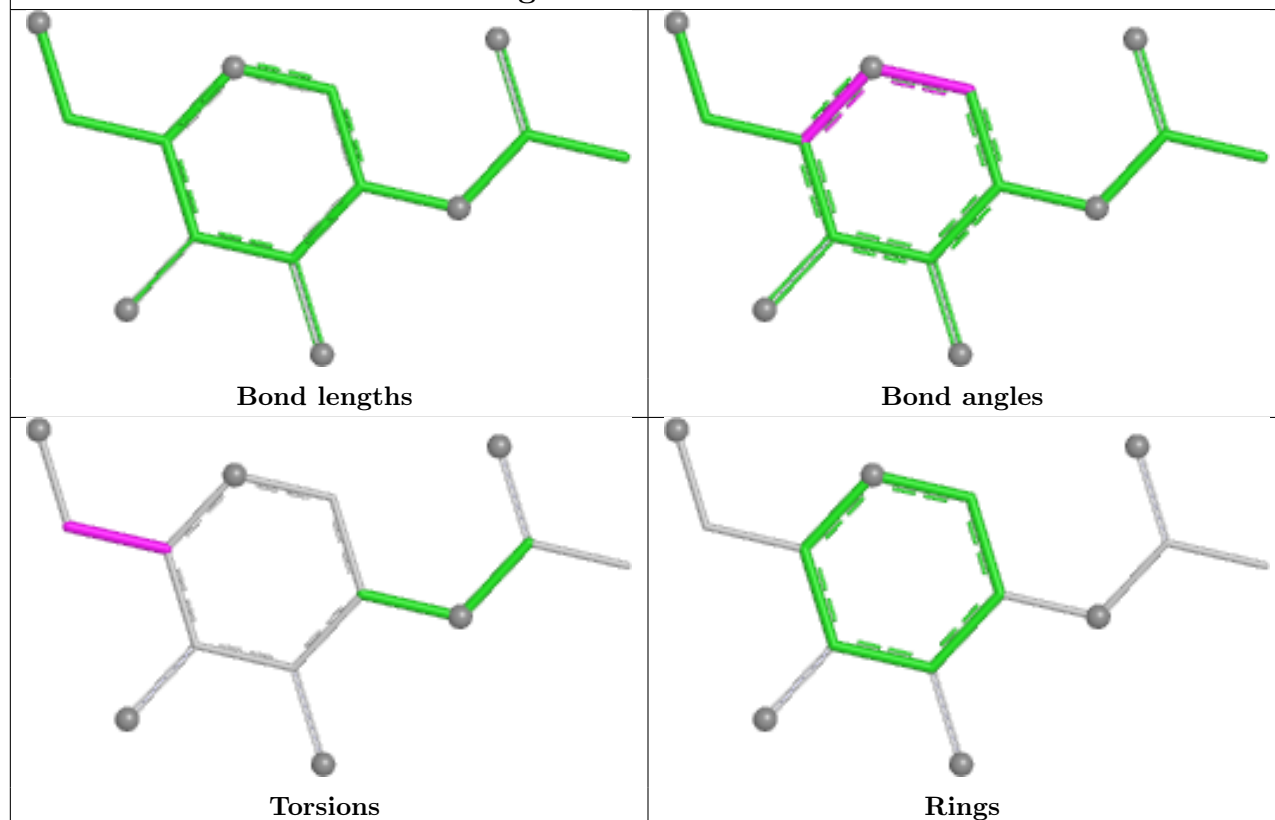
Ligand NAG B 1211

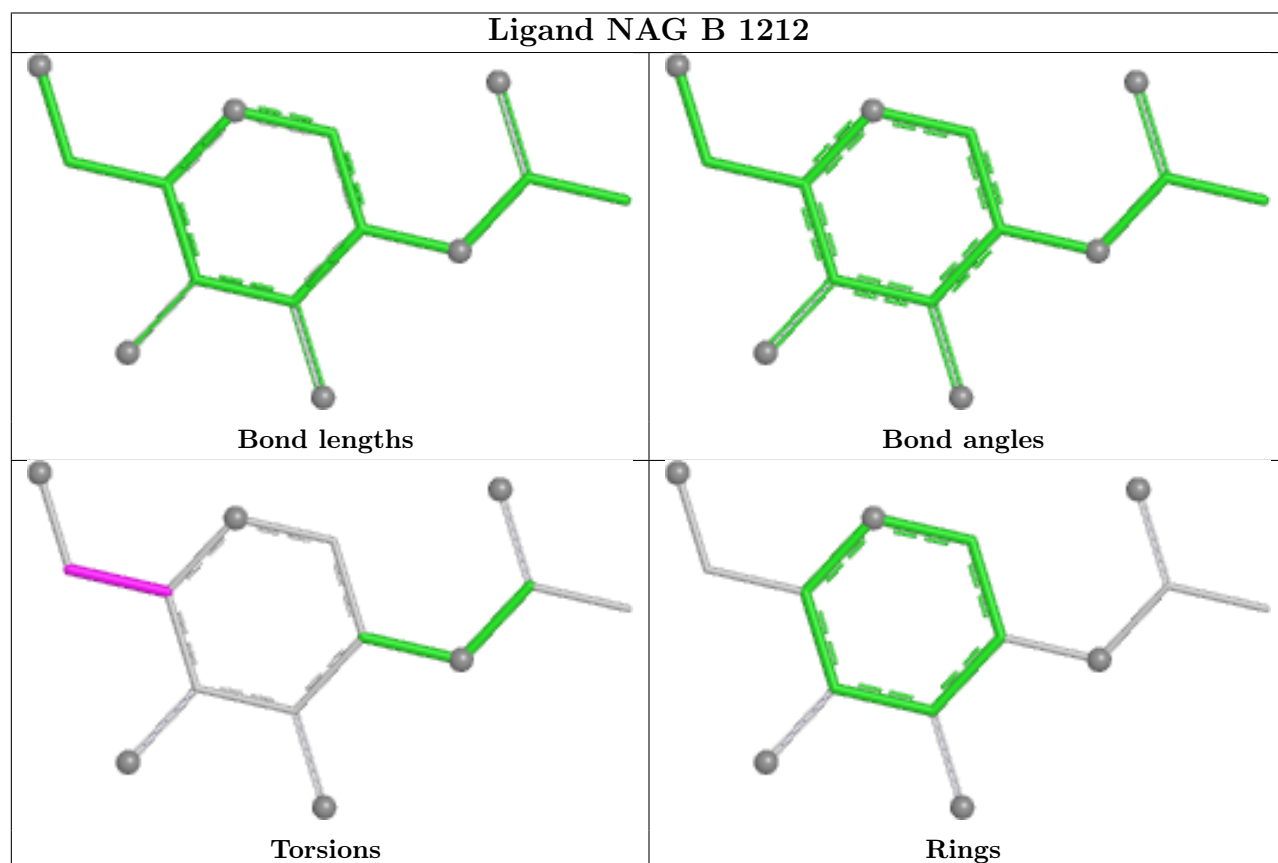
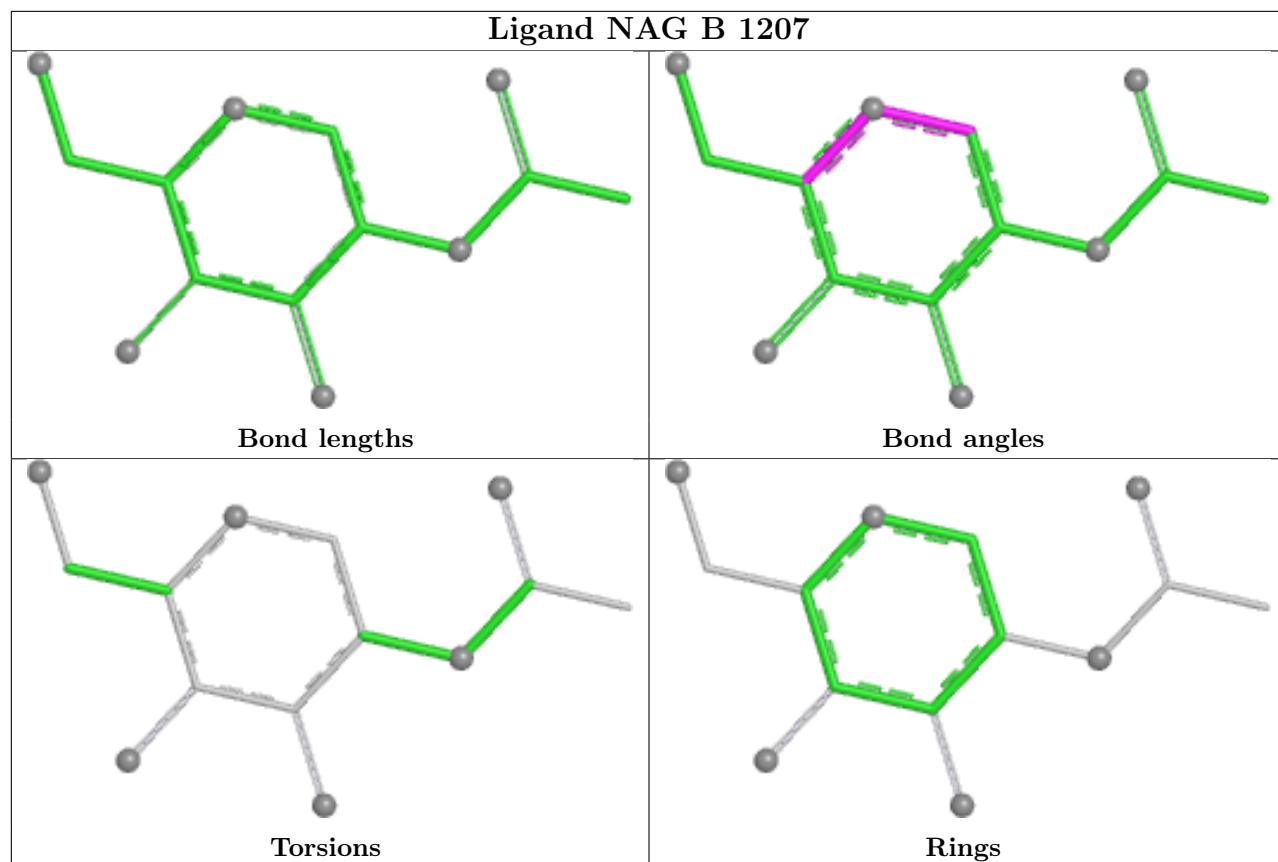


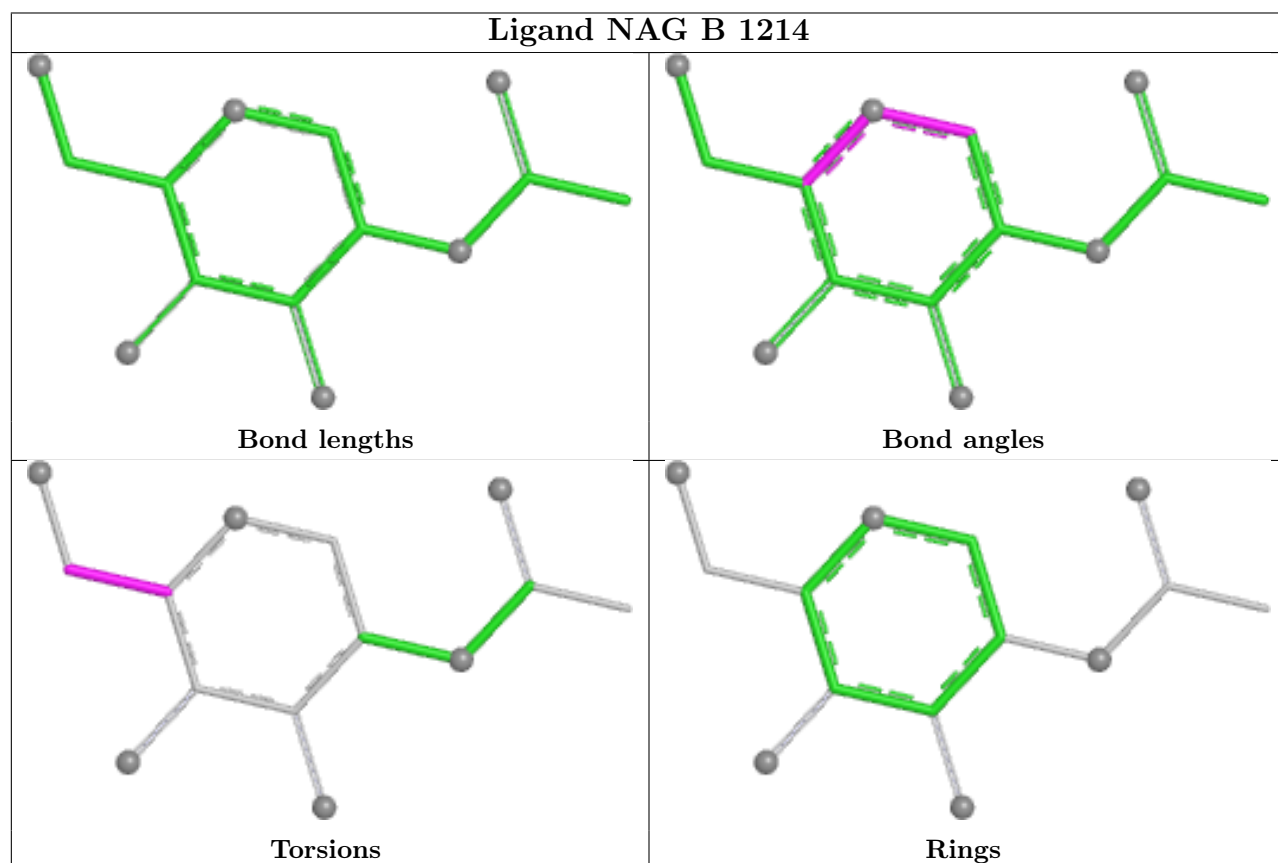
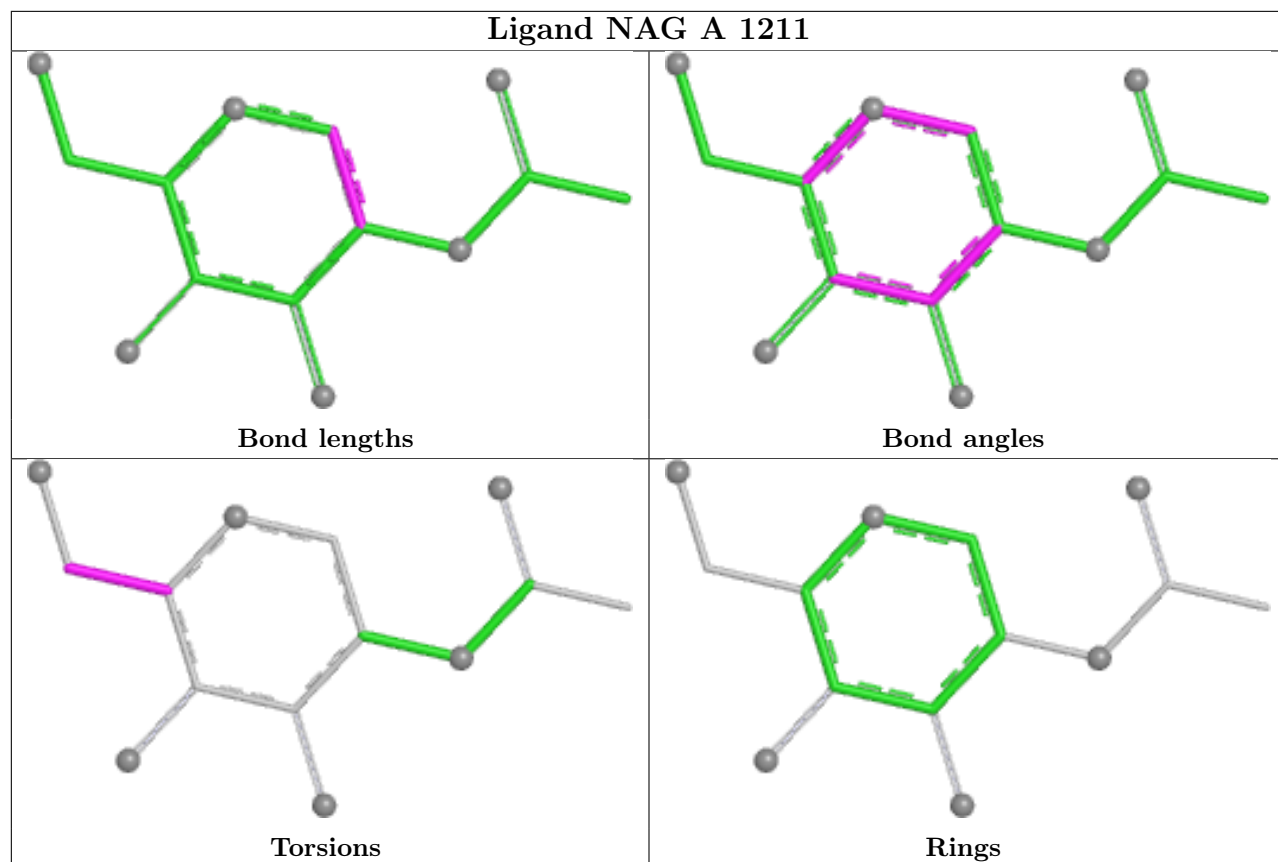
Ligand NAG C 1210



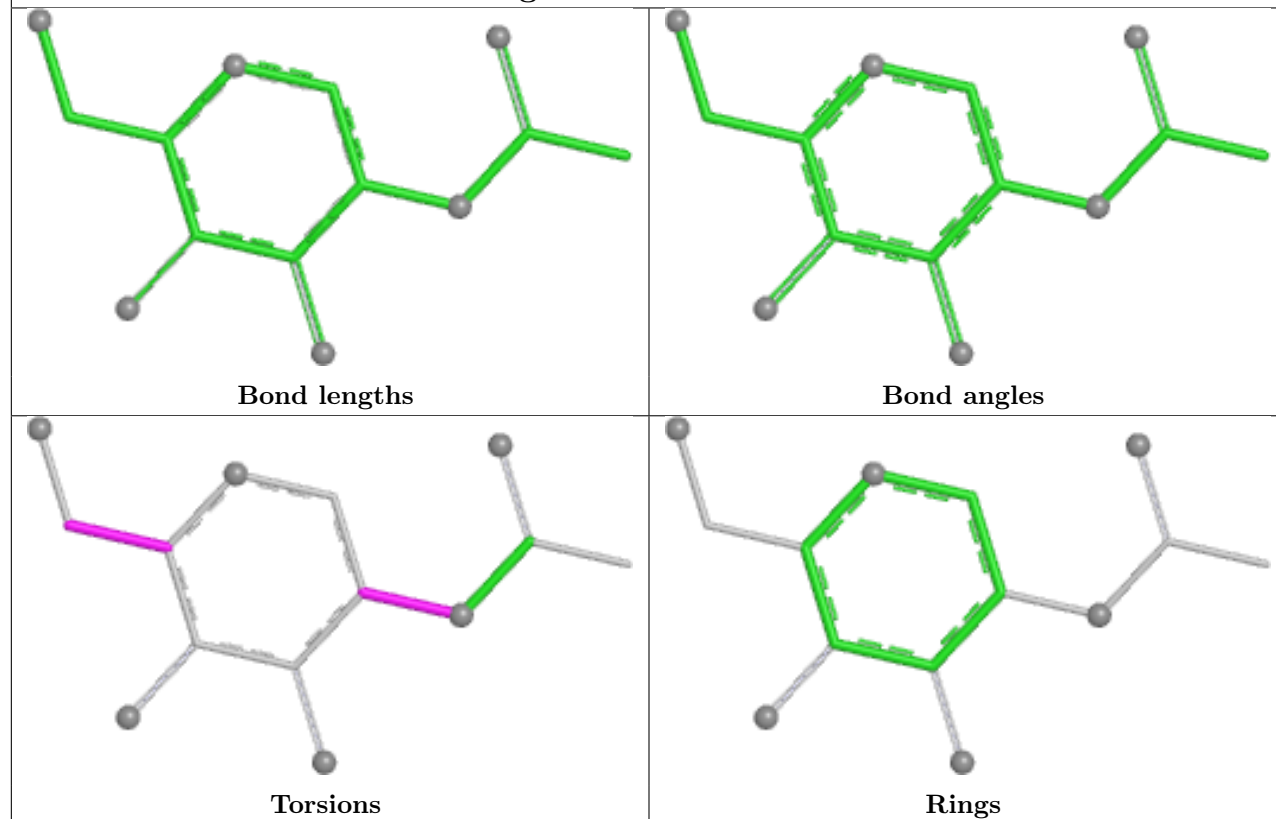
Ligand NAG C 1213



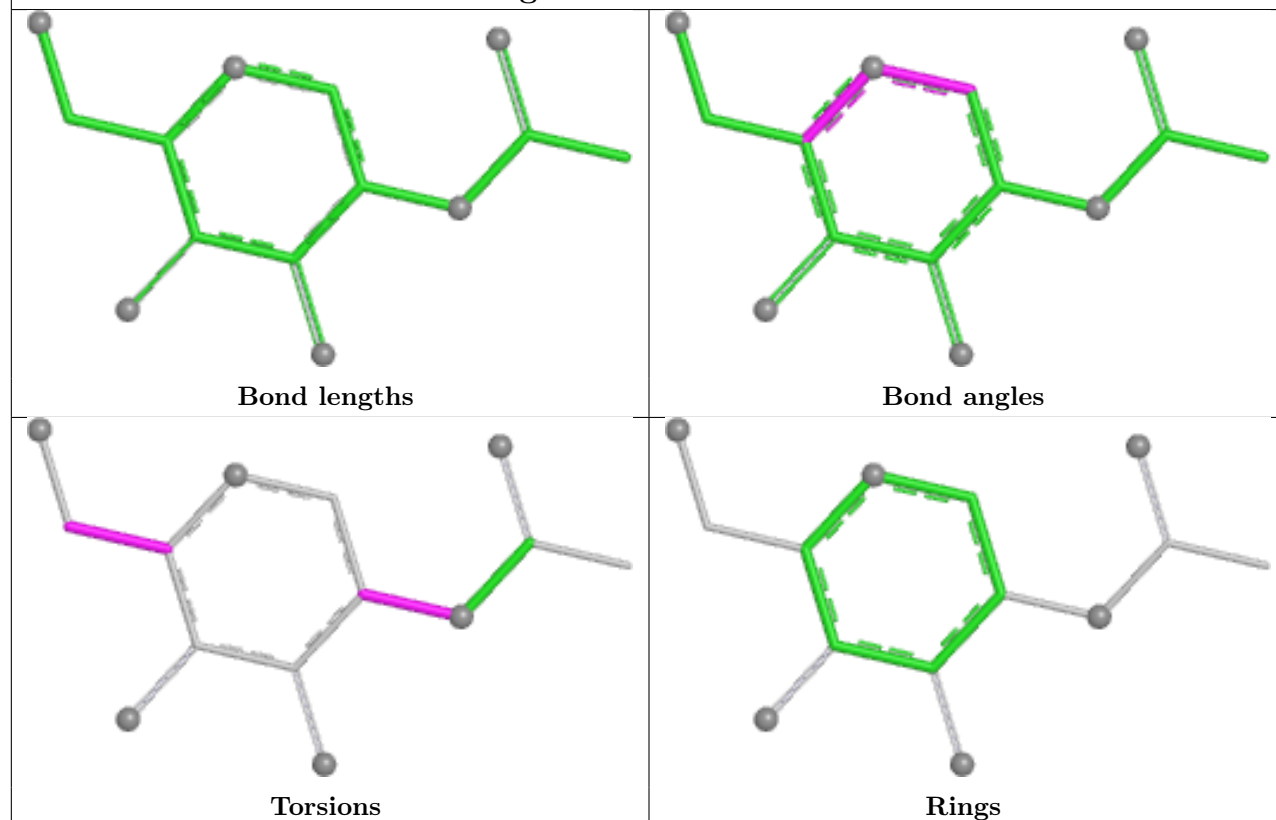




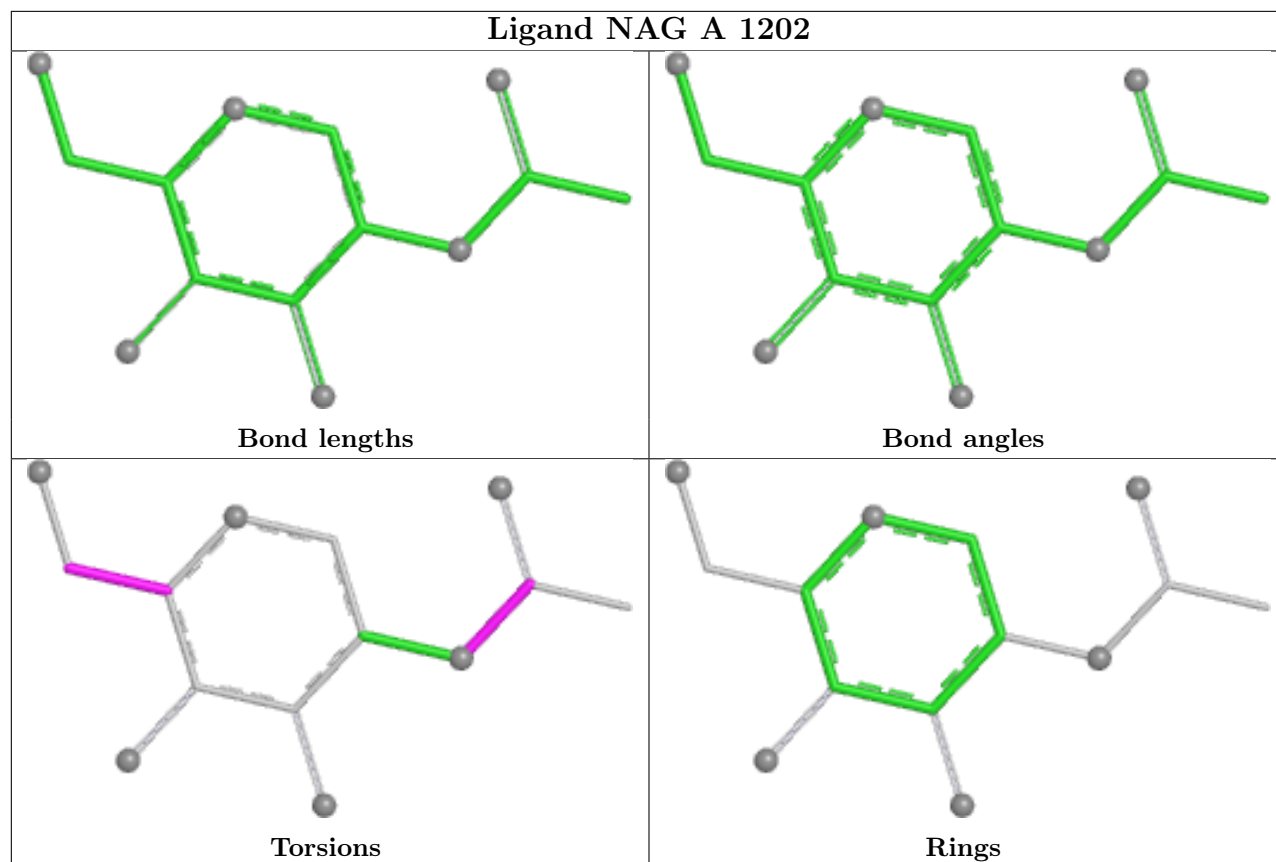
Ligand NAG C 1208



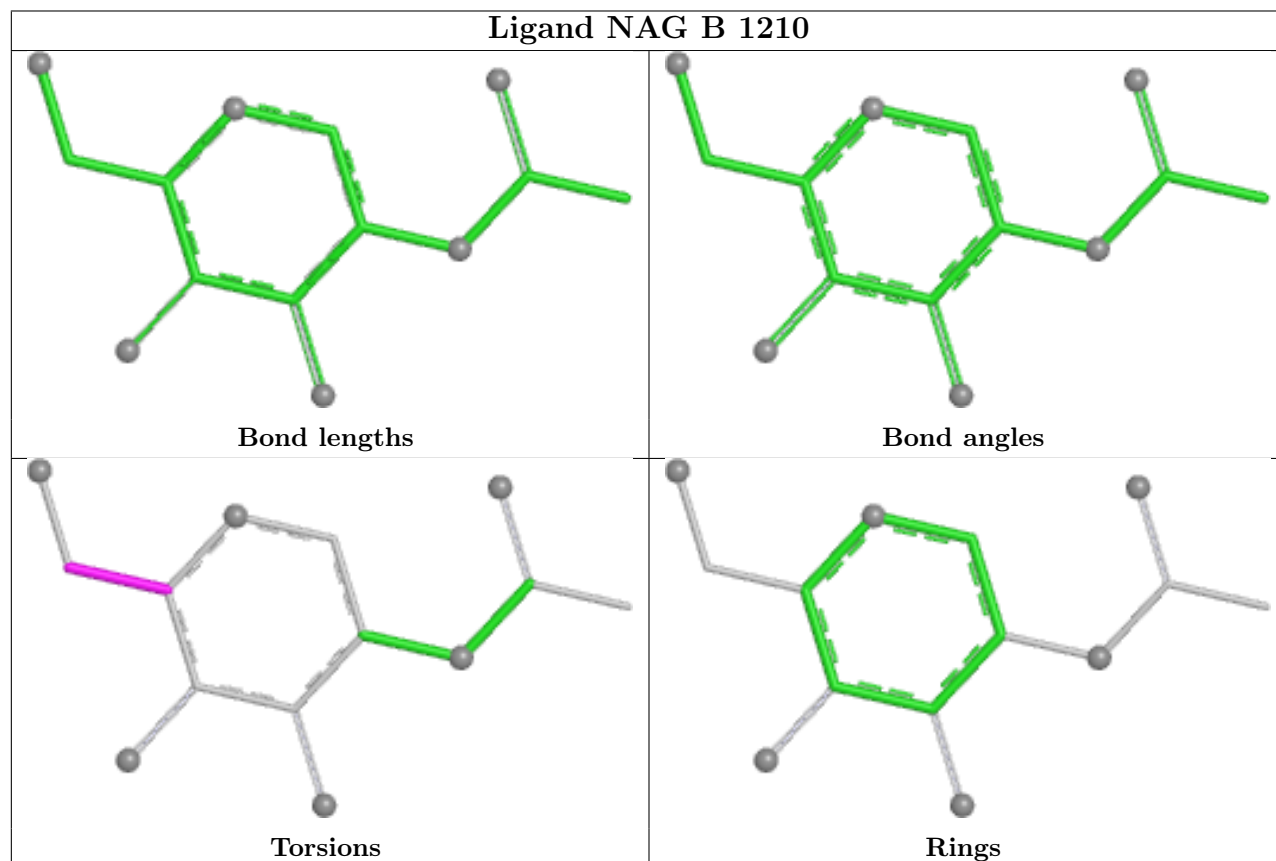
Ligand NAG B 1205



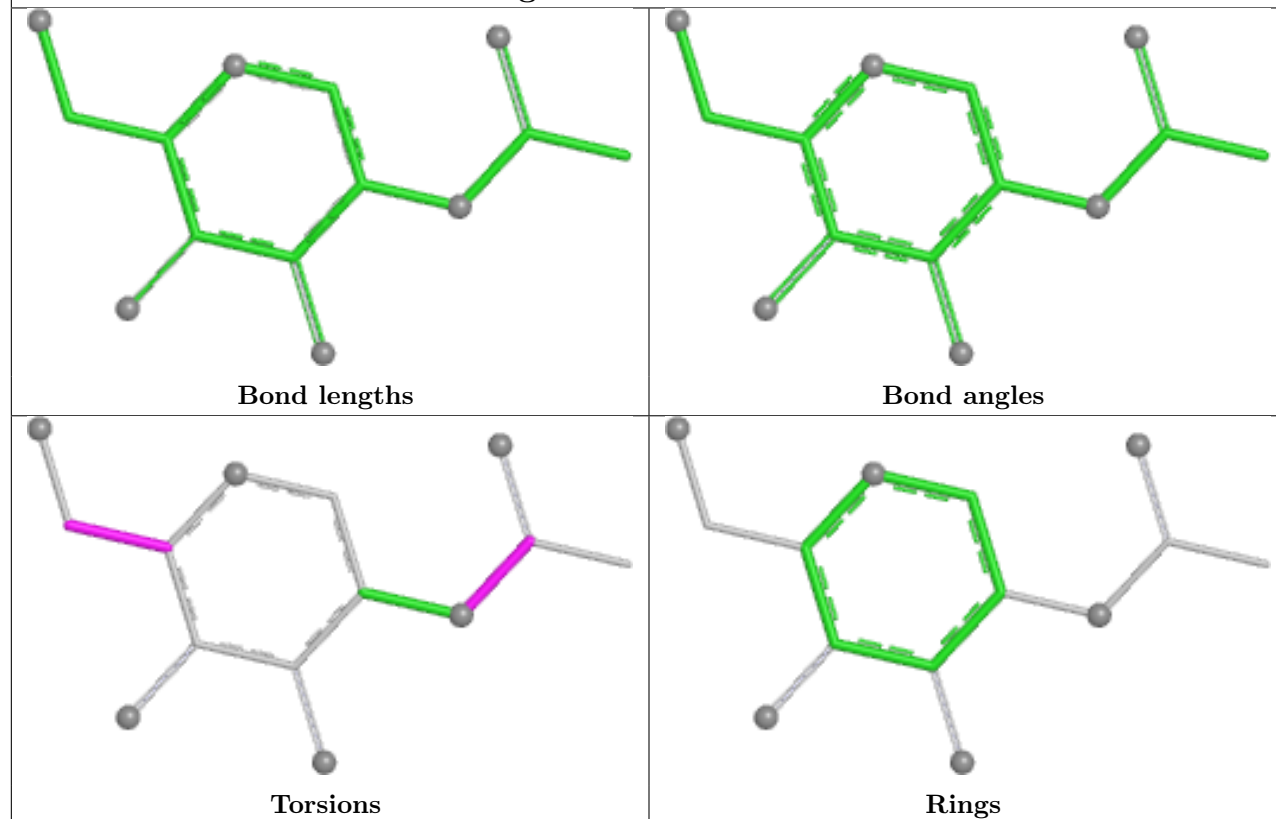
Ligand NAG A 1202



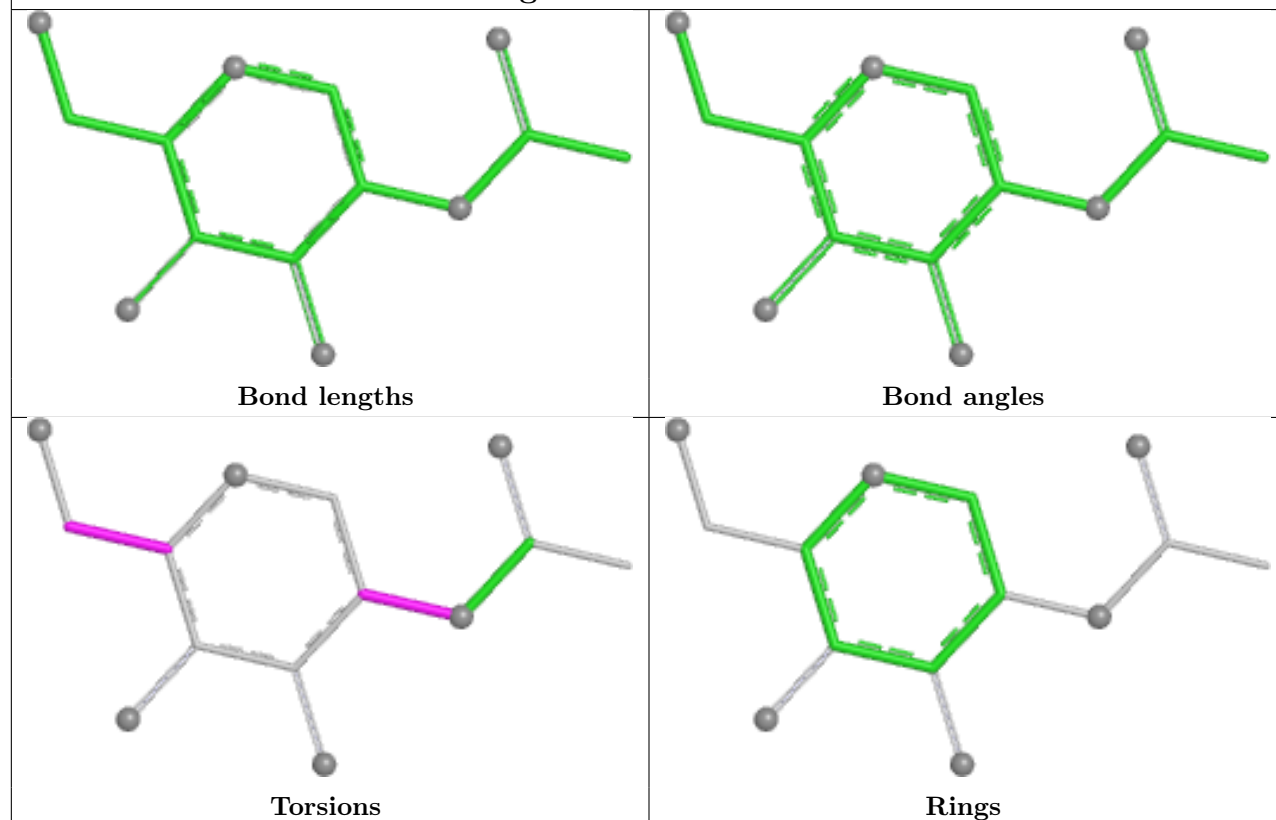
Ligand NAG B 1210

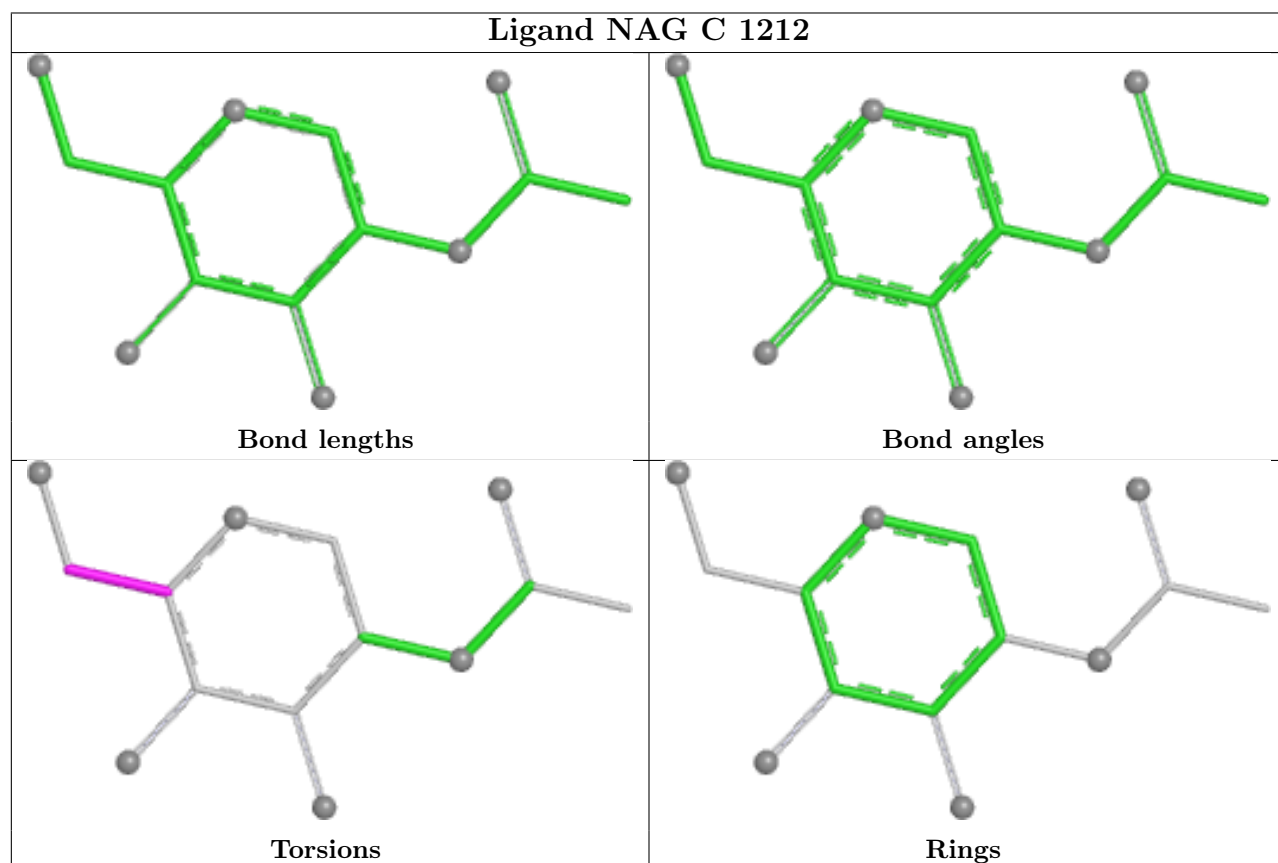
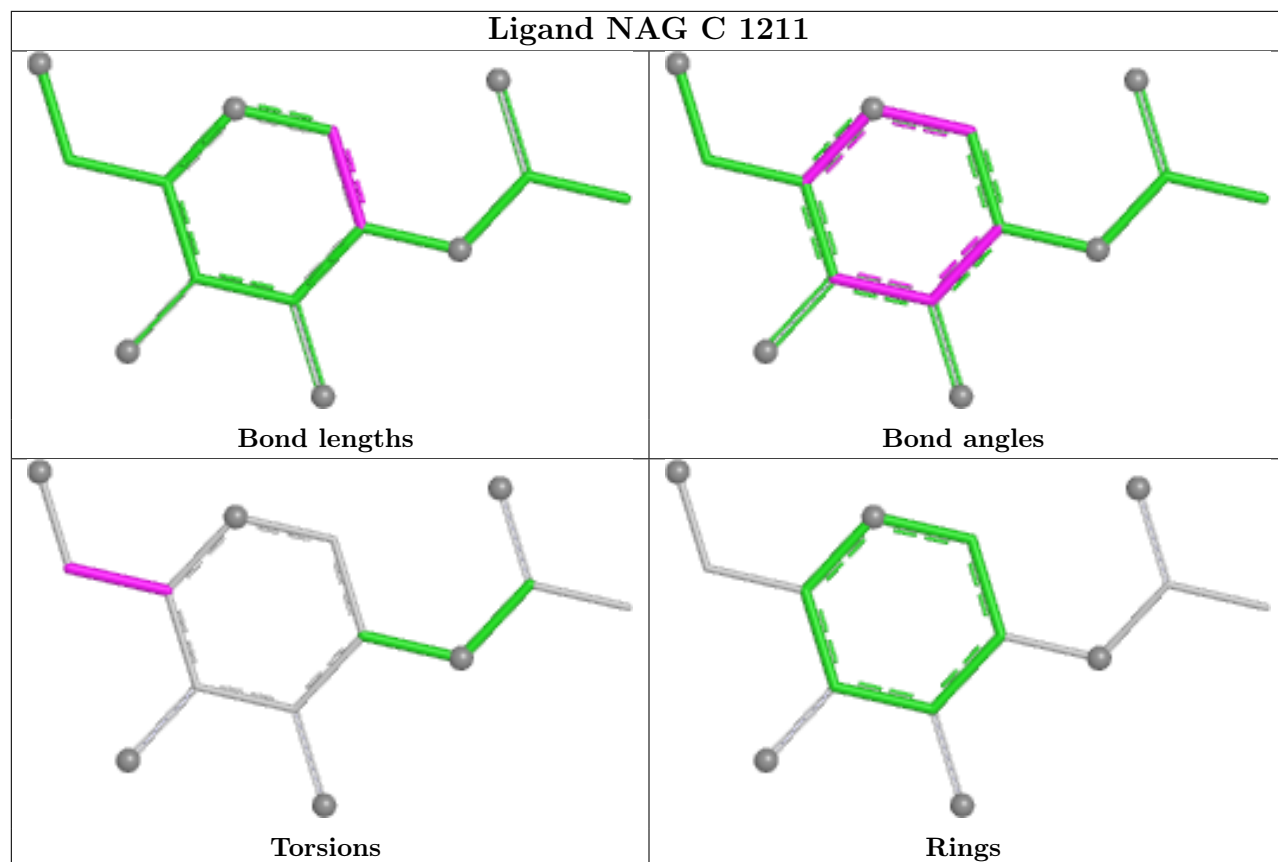


Ligand NAG A 1216

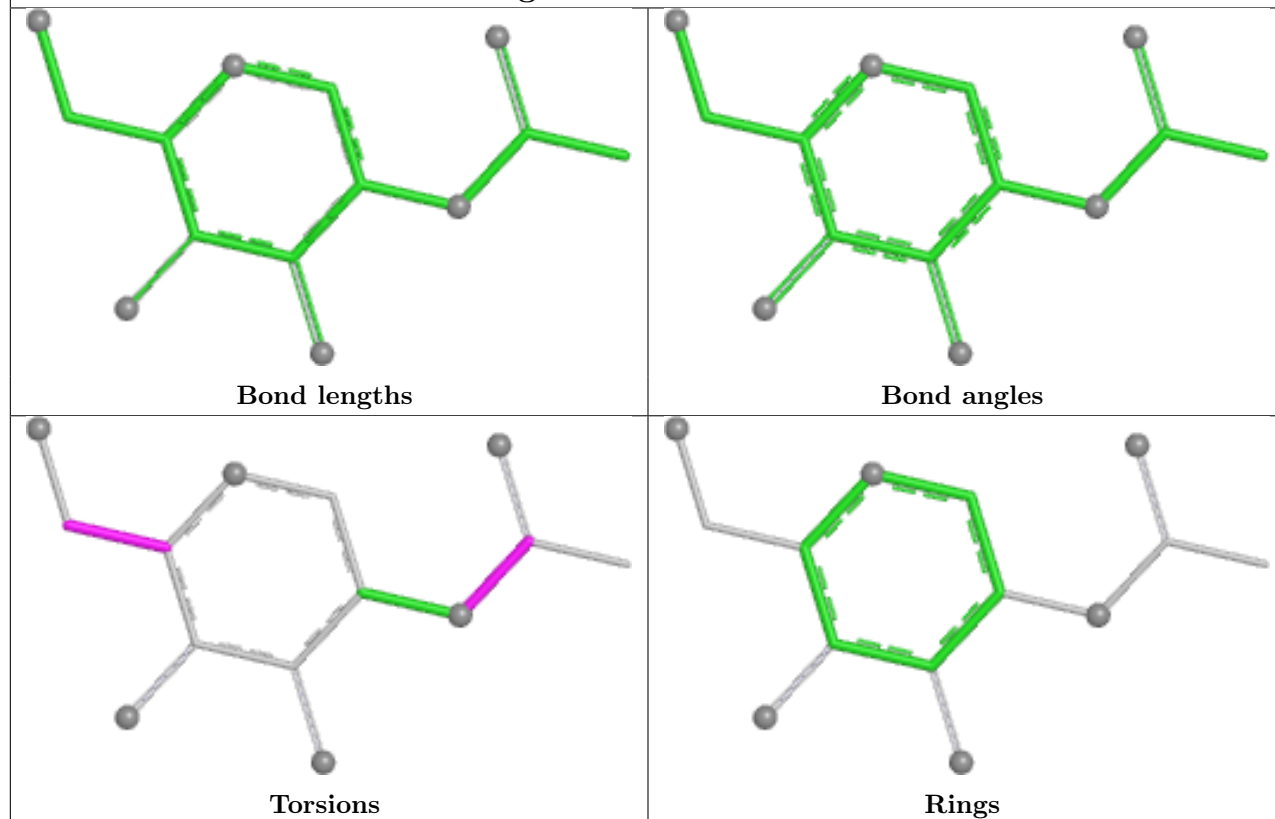


Ligand NAG B 1206

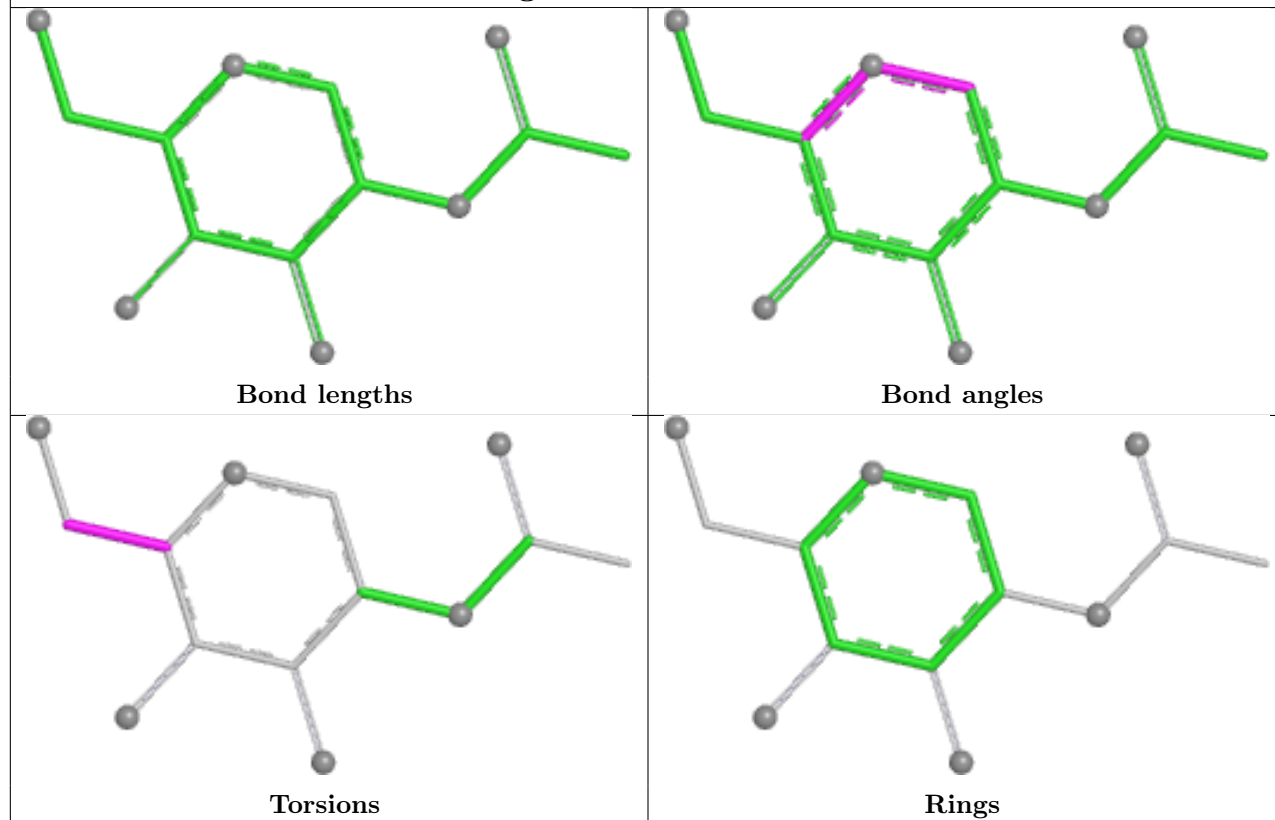




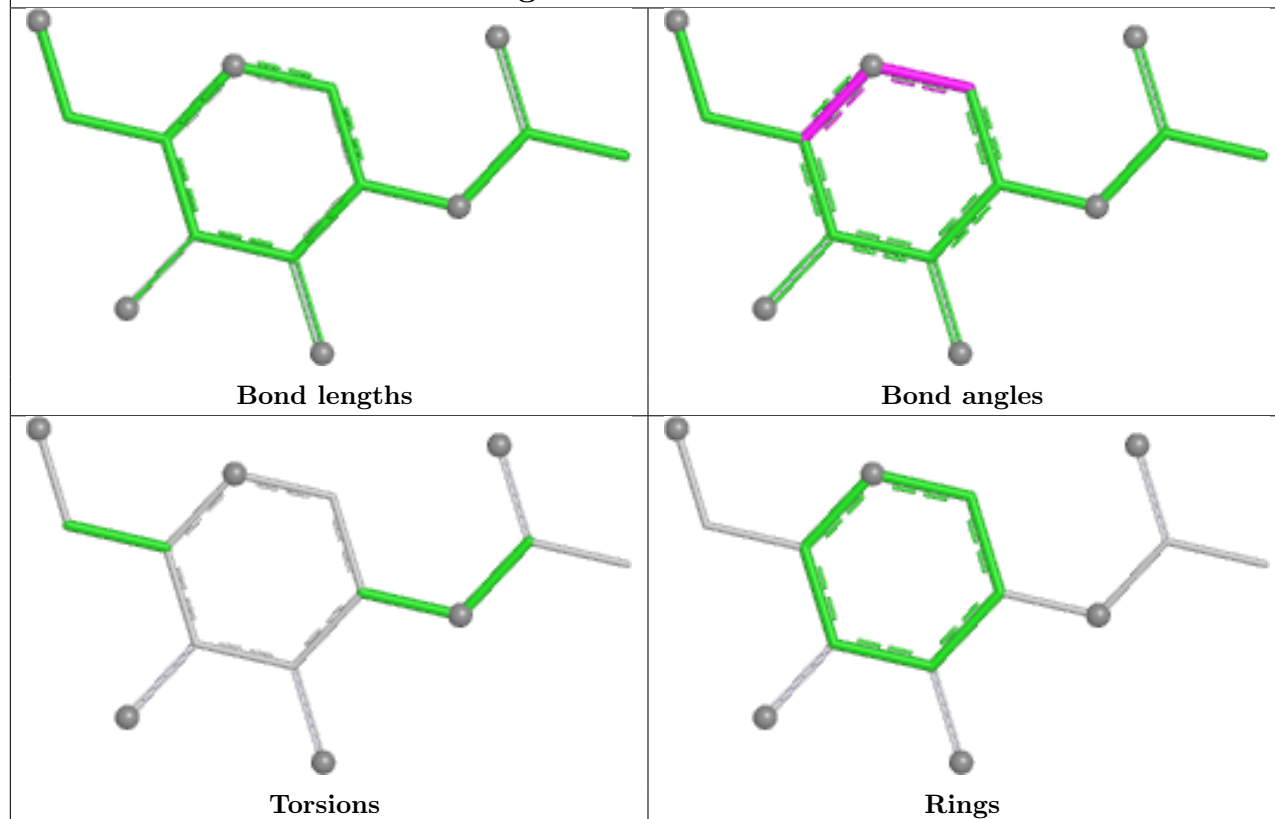
Ligand NAG C 1215



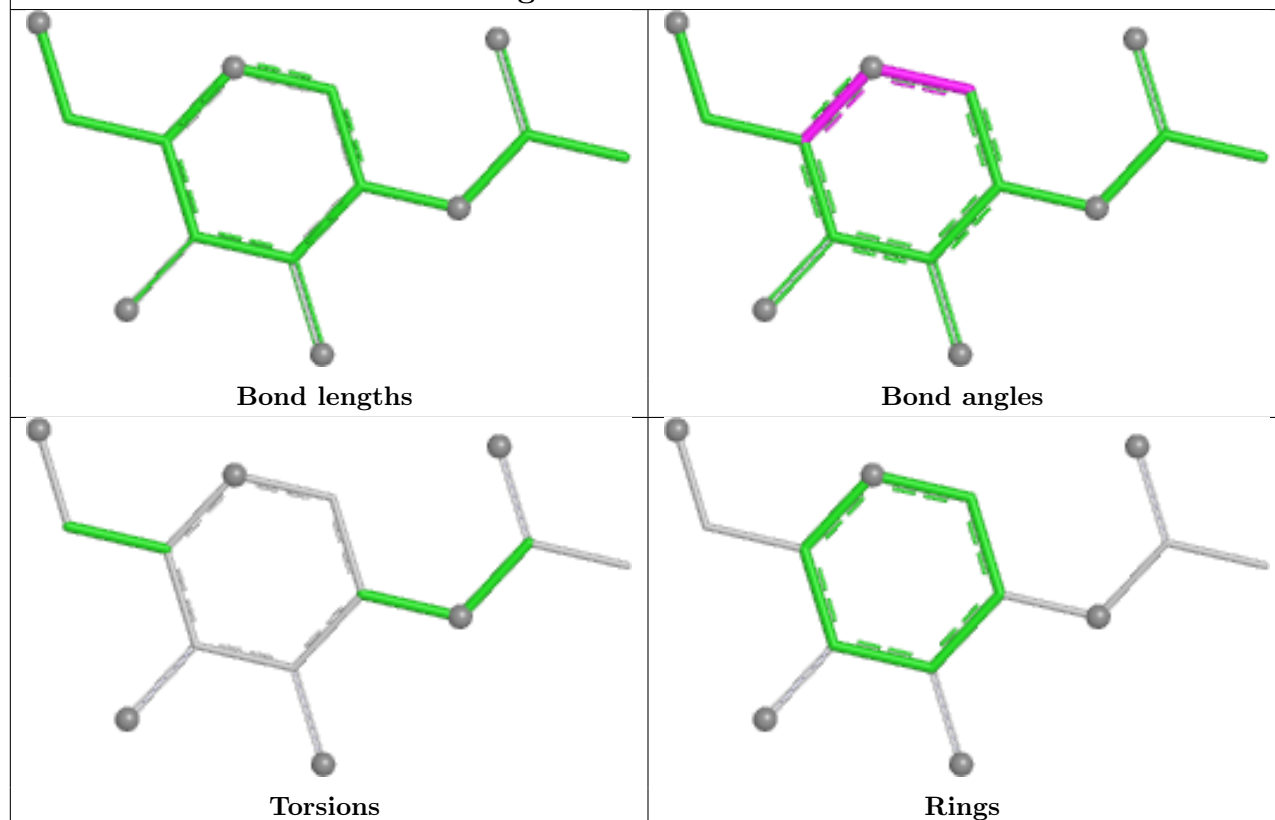
Ligand NAG C 1214

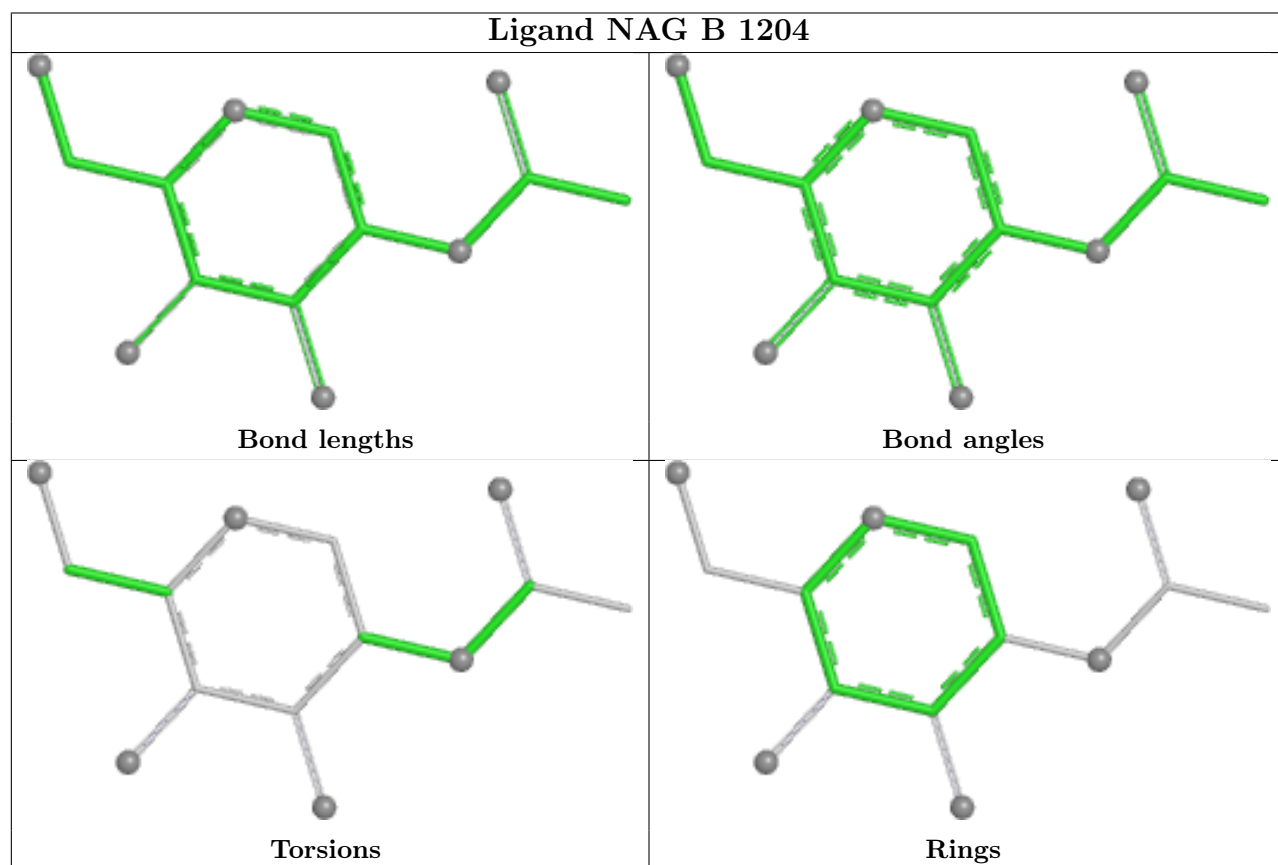
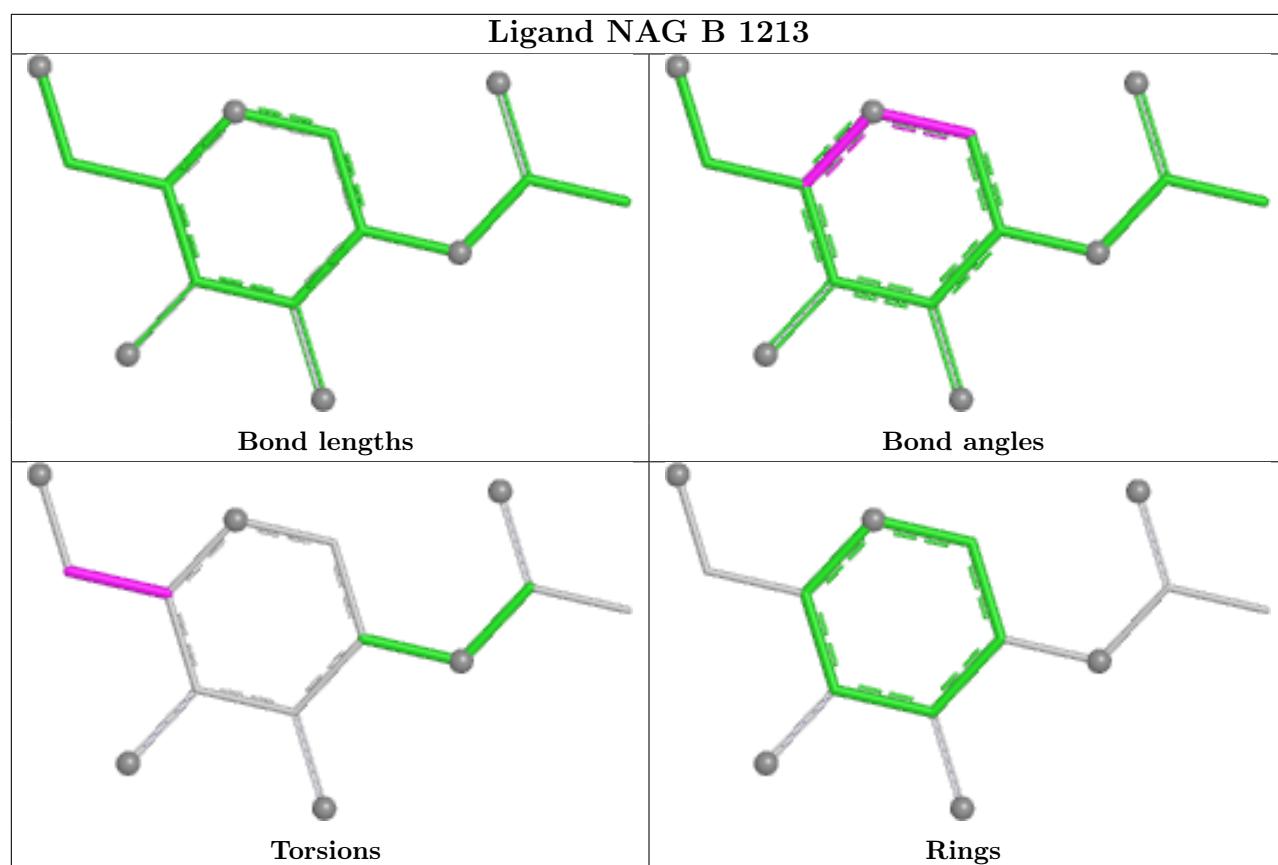


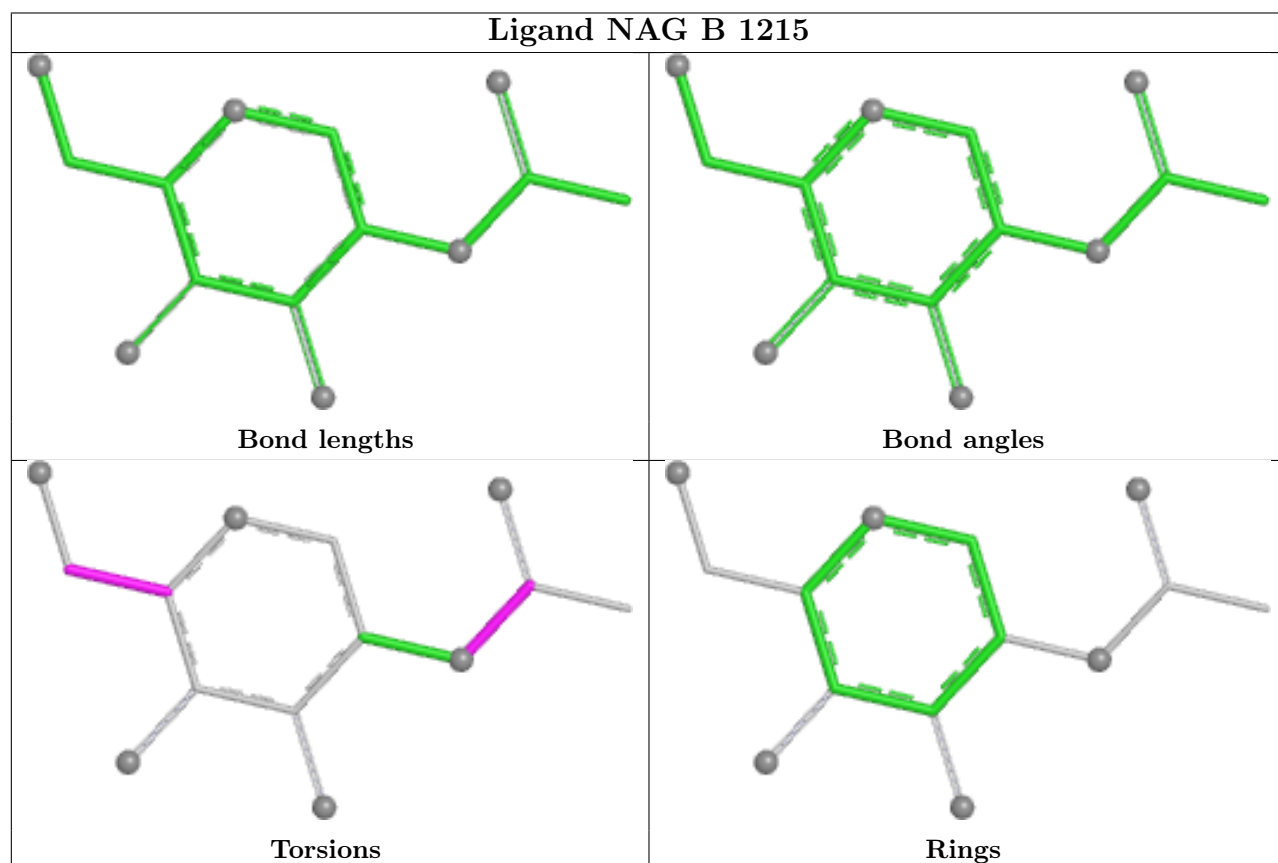
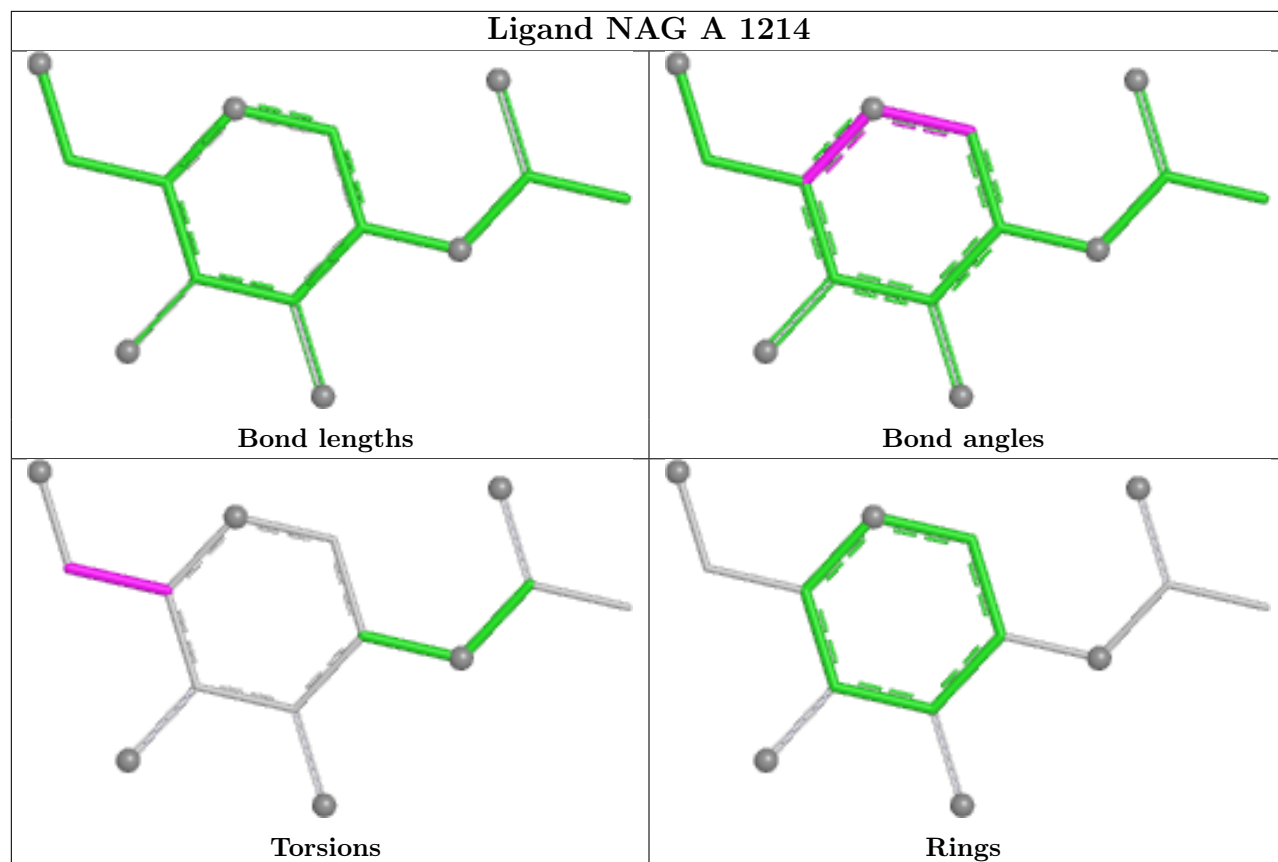
Ligand NAG C 1207

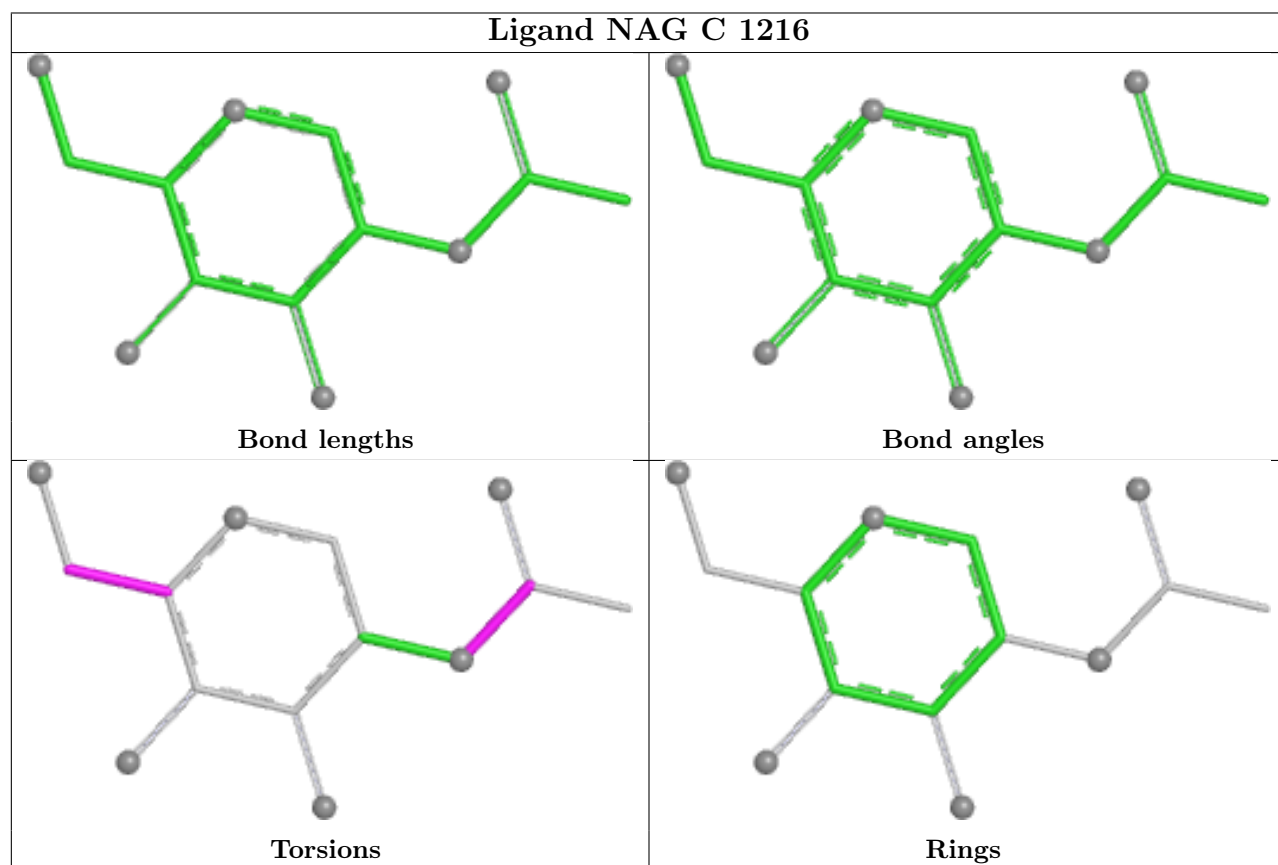
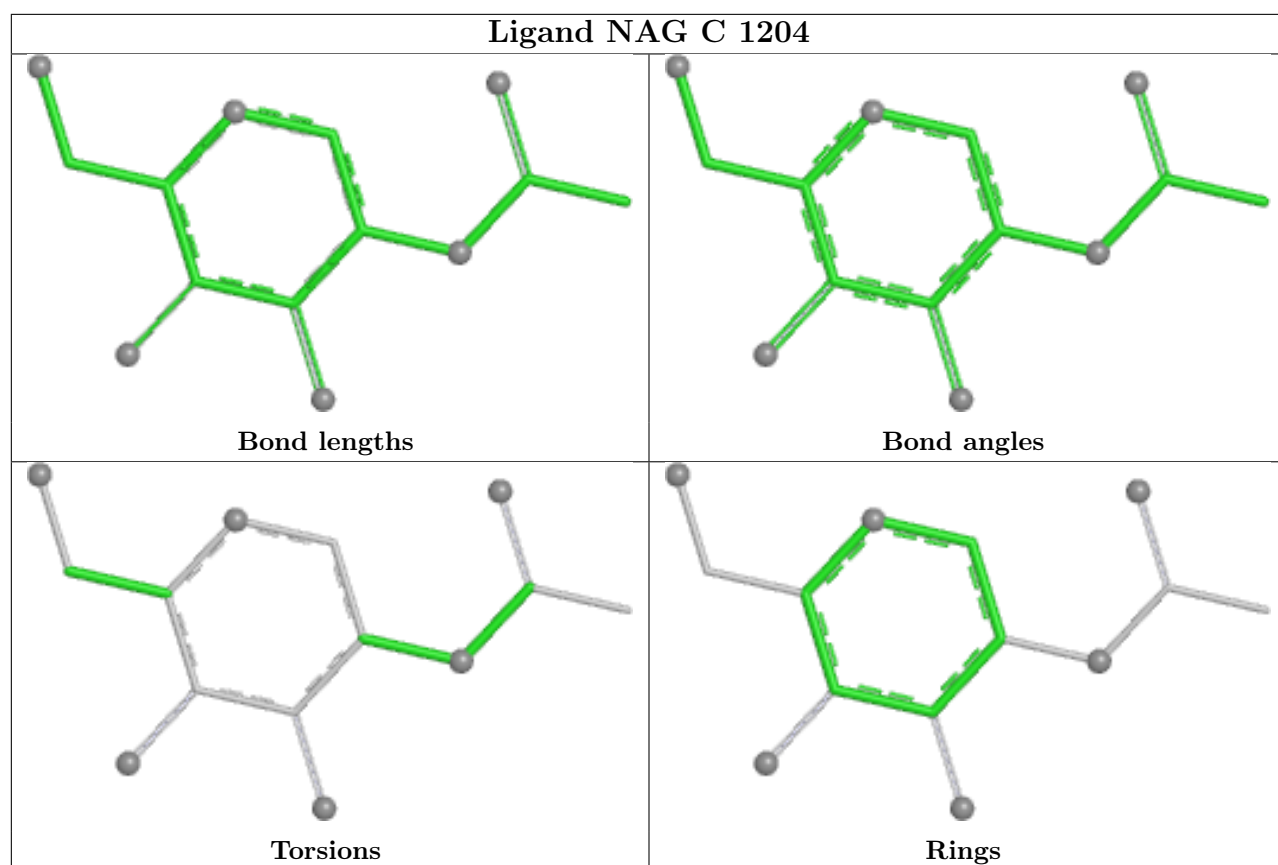


Ligand NAG A 1207









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 [i](#)

This section contains visualisations of the EMDB entry EMD-30496. These allow visual inspection of the internal detail of the map and identification of artifacts.

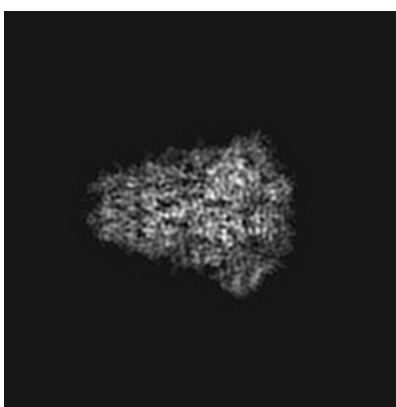
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

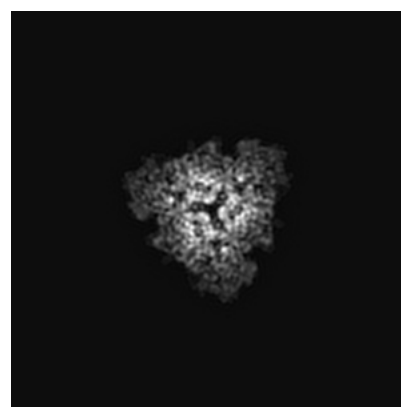
6.1.1 Primary map



X



Y



Z

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

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 100



Y Index: 100



Z Index: 100

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: 89



Y Index: 105

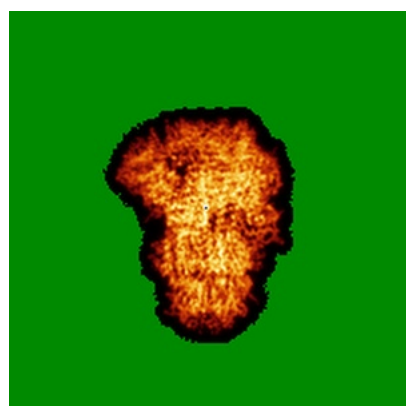


Z Index: 110

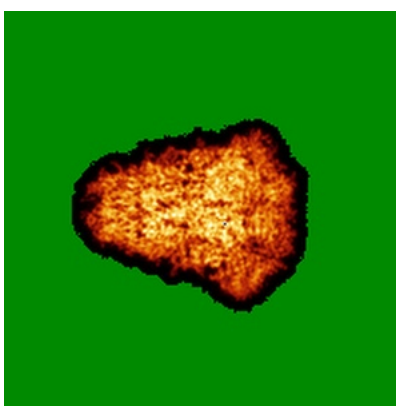
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

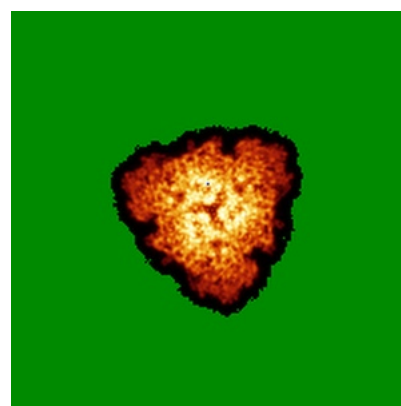
6.4.1 Primary map



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

This section was not generated.

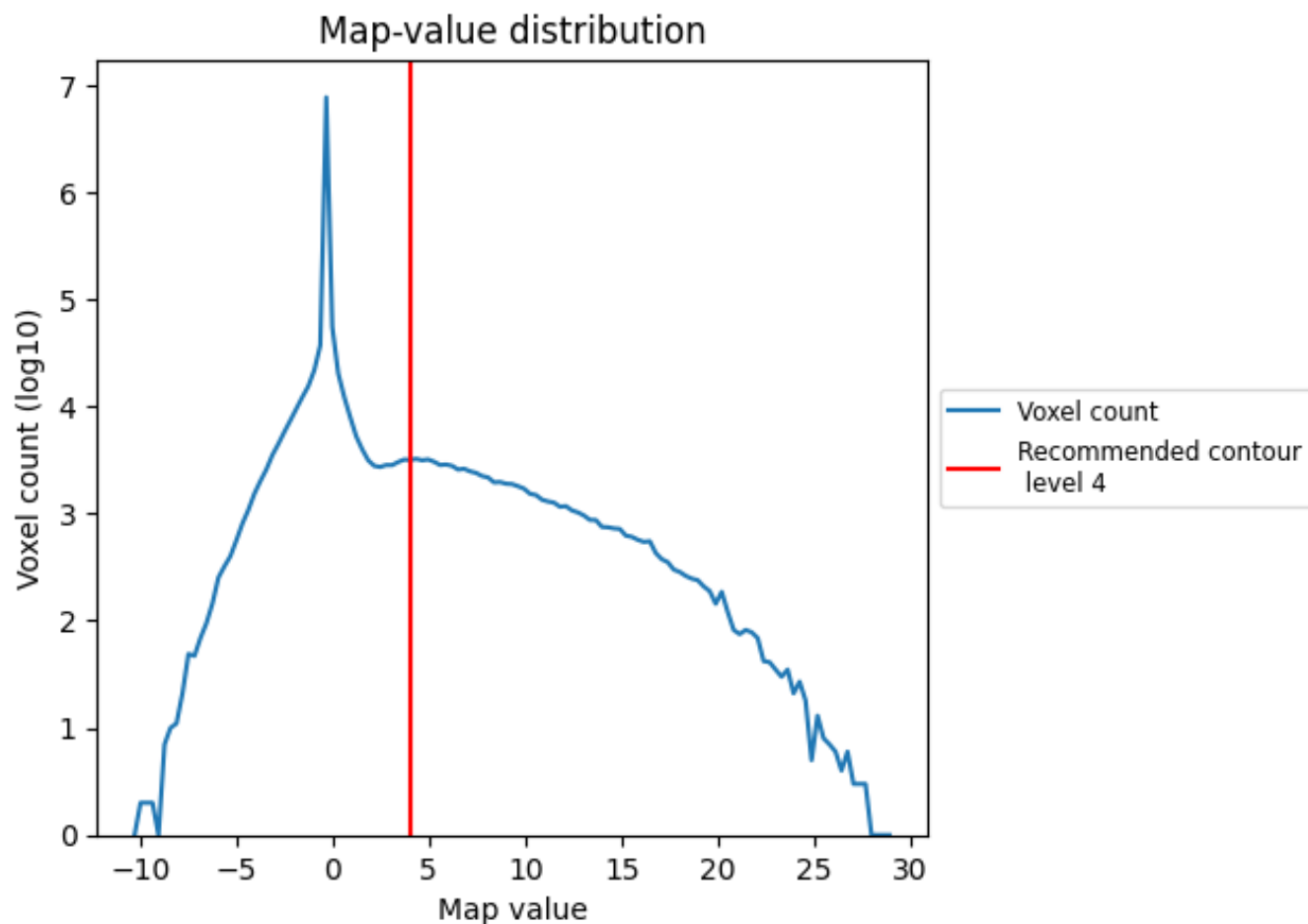
6.6 Mask visualisation

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

7 Map analysis [i](#)

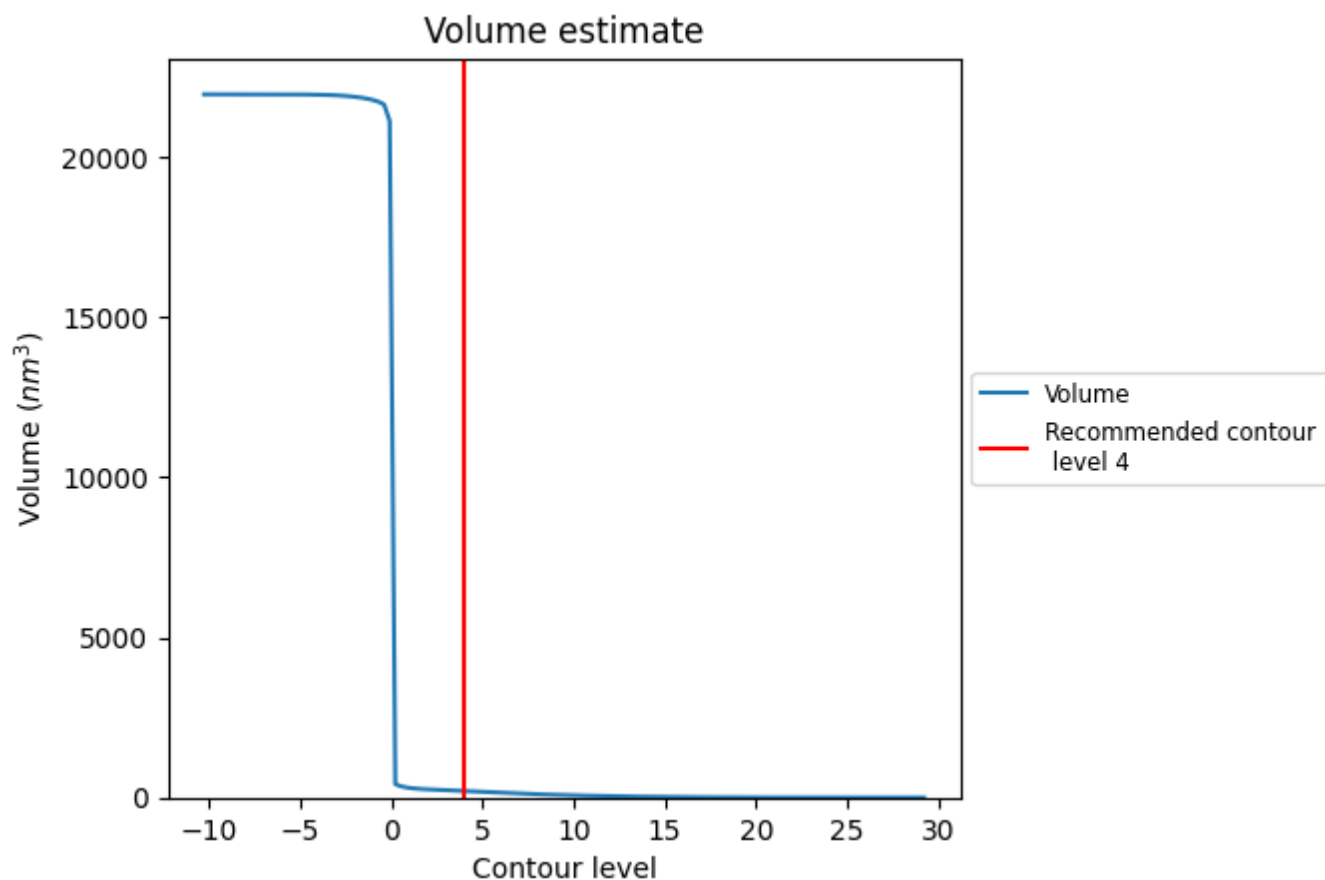
This section contains the results of statistical analysis of the map.

7.1 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.

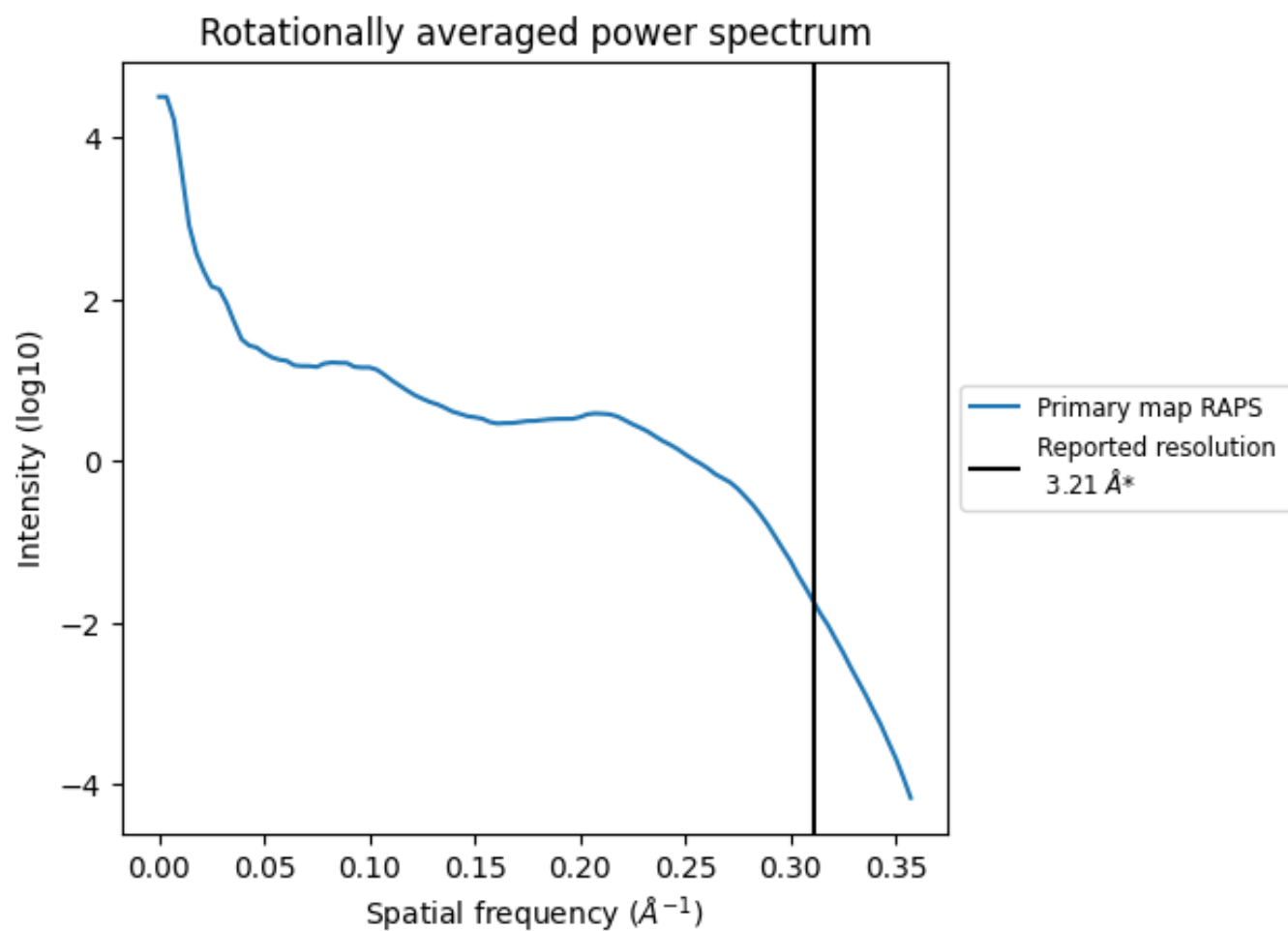
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 204 nm³; this corresponds to an approximate mass of 184 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 ⓘ



*Reported resolution corresponds to spatial frequency of 0.312 $\text{\AA}^{-1}$

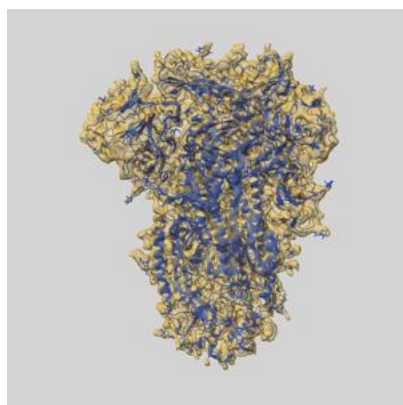
8 Fourier-Shell correlation

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

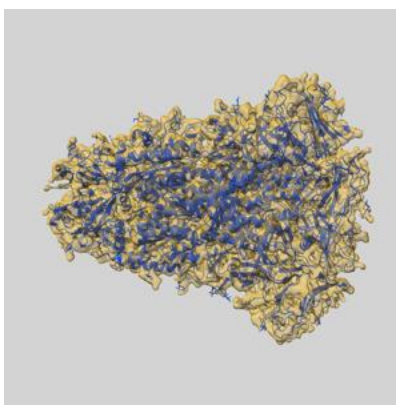
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-30496 and PDB model 7CYC. Per-residue inclusion information can be found in section [3](#) on page [9](#).

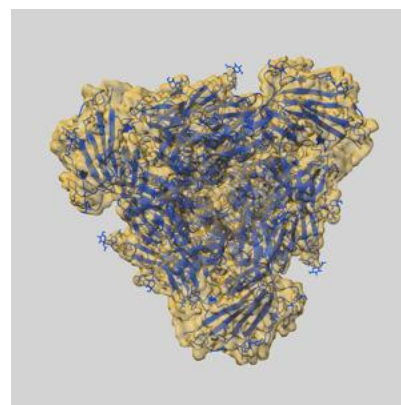
9.1 Map-model overlay [i](#)



X



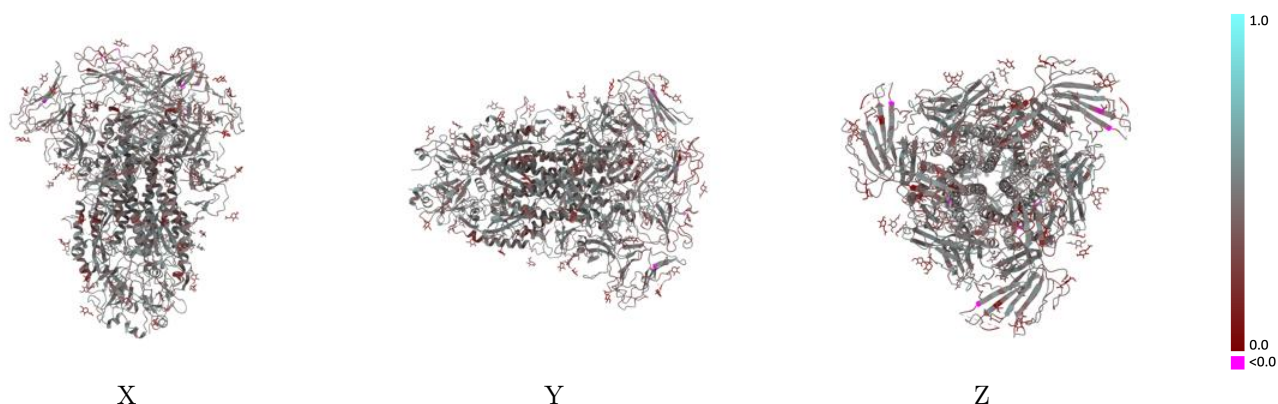
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 4.0 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 [i](#)

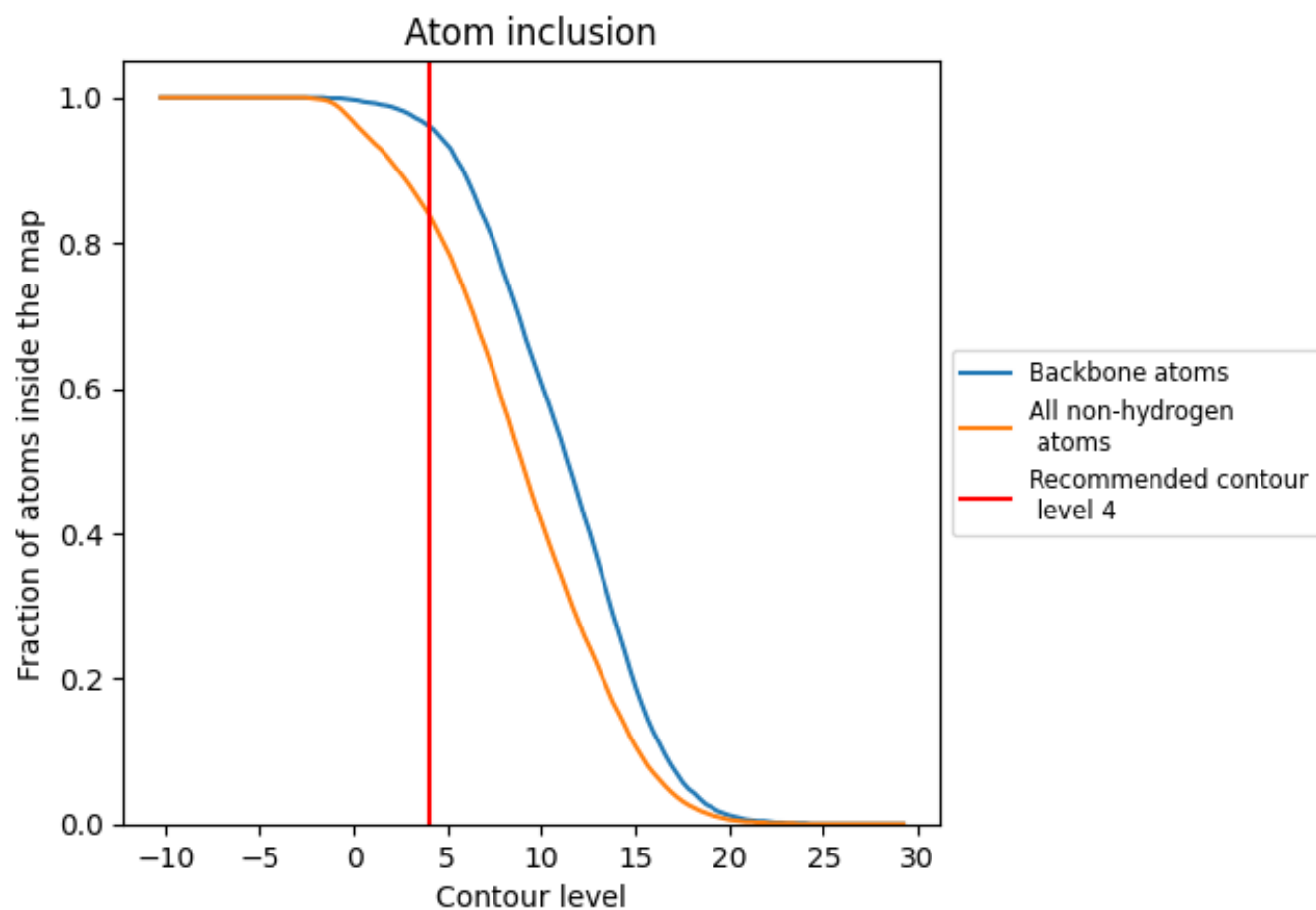


The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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

This section was not generated.

9.4 Atom inclusion [i](#)



At the recommended contour level, 96% of all backbone atoms, 84% 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 (4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8400	 0.4240
A	 0.8460	 0.4280
B	 0.8450	 0.4270
C	 0.8480	 0.4260
D	 0.5420	 0.3230
E	 0.6150	 0.3120
F	 0.4290	 0.1820
G	 0.7440	 0.4220
H	 0.5540	 0.3310
I	 0.5380	 0.2800
J	 0.3930	 0.1950
K	 0.7690	 0.4430
L	 0.5900	 0.3190
M	 0.5380	 0.2550
N	 0.3930	 0.2380
O	 0.7950	 0.4320

