Full wwPDB X-ray Structure Validation Report ⓘ

Jun 22, 2026 – 01:14 pm BST

PDB ID	:	9TN9 / pdb_00009tn9
Title	:	F420-nitrite reductase from Methanocaldococcus infernus soaked with 50 mM nitrite
Authors	:	Heidenreich, A.; Wagner, T.
Deposited on	:	2025-12-15
Resolution	:	1.20 Å(reported)

This is a Full wwPDB X-ray Structure 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/XrayValidationReportHelp
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:

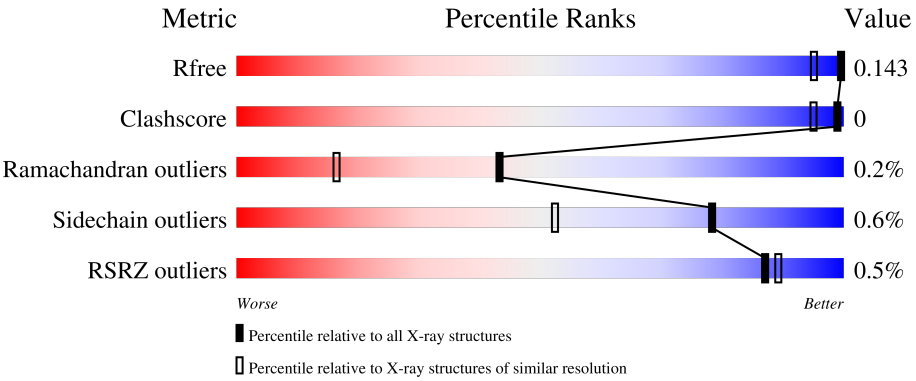
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal 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:
X-RAY DIFFRACTION

The reported resolution of this entry is 1.20 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)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	1216 (1.20-1.20)
Clashscore	190562	1265 (1.20-1.20)
Ramachandran outliers	187476	1226 (1.20-1.20)
Sidechain outliers	187428	1226 (1.20-1.20)
RSRZ outliers	180081	1214 (1.20-1.20)

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

Mol	Chain	Length	Quality of chain
1	A	613	98%

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
4	SRM	A	703	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
8	GOL	A	714	-	-	-	X

2 Entry composition

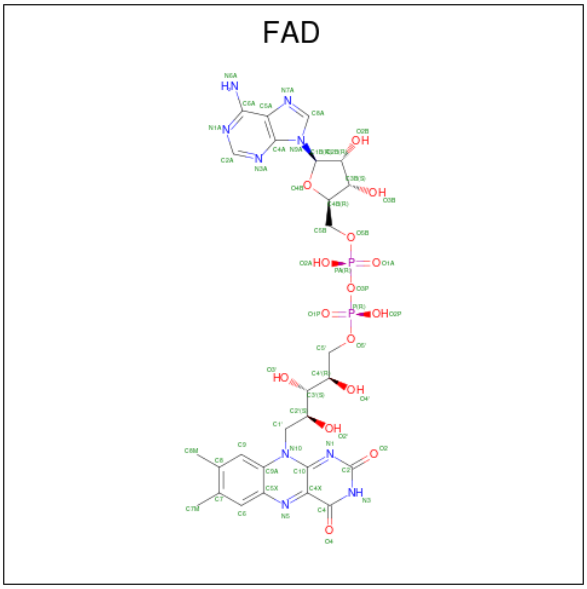
There are 13 unique types of molecules in this entry. The entry contains 11252 atoms, of which 5207 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 Coenzyme F420 hydrogenase/dehydrogenase beta subunit domain protein.

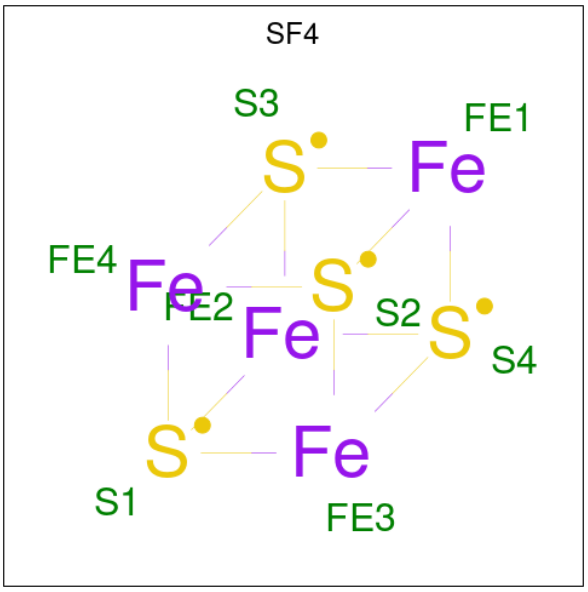
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	H	N	O	S			
1	A	613	10241	3228	5207	847	927	32	0	27	0

- Molecule 2 is FLAVIN-ADENINE DINUCLEOTIDE (CCD ID: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$) (labeled as "Ligand of Interest" by depositor).



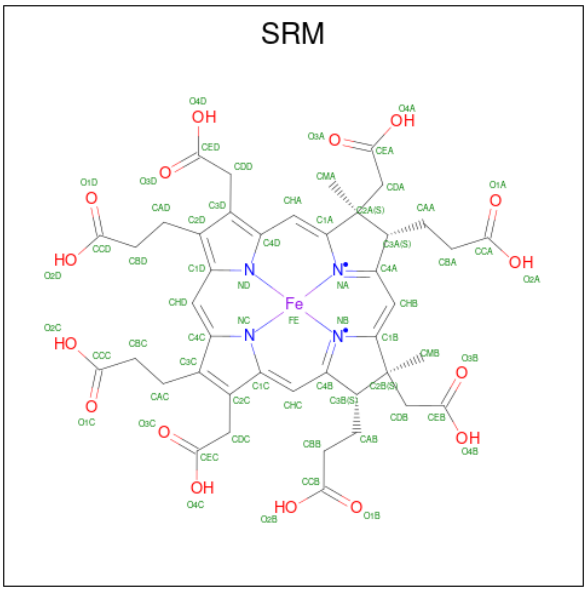
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	53	27	9	15	2	0	0

- Molecule 3 is IRON/SULFUR CLUSTER (CCD ID: SF4) (formula: Fe_4S_4) (labeled as "Ligand of Interest" by depositor).



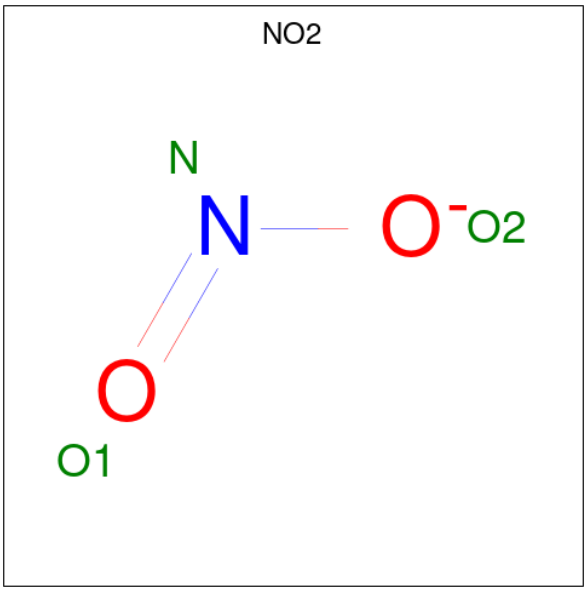
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total Fe S 8 4 4	0	0
3	A	1	Total Fe S 8 4 4	0	0
3	A	1	Total Fe S 8 4 4	0	0
3	A	1	Total Fe S 8 4 4	0	0
3	A	1	Total Fe S 8 4 4	0	0
3	A	1	Total Fe S 8 4 4	0	0

- Molecule 4 is SIROHEME (CCD ID: SRM) (formula: $C_{42}H_{44}FeN_4O_{16}$) (labeled as "Ligand of Interest" by depositor).



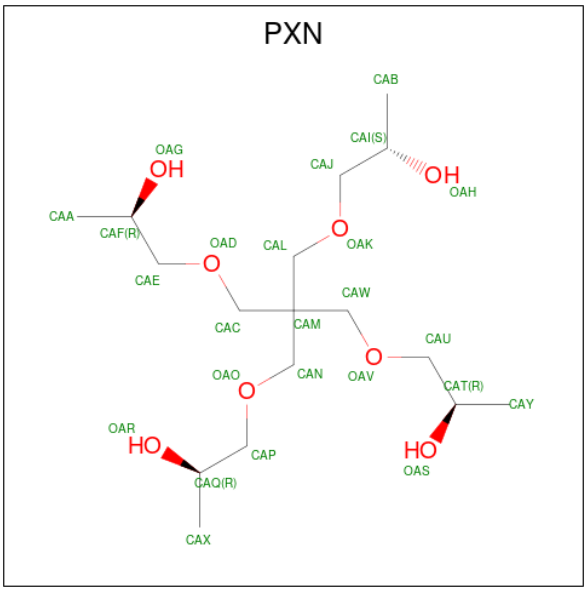
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	Fe	N	O		
4	A	1	63	42	1	4	16	0	0

- Molecule 5 is NITRITE ION (CCD ID: NO2) (formula: NO_2) (labeled as "Ligand of Interest" by depositor).



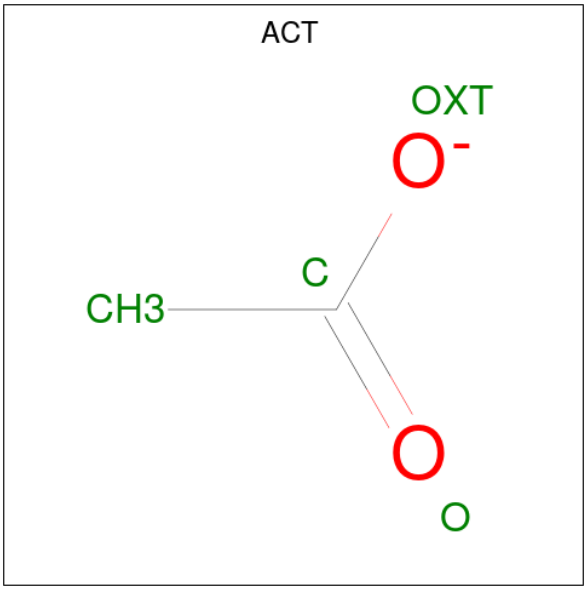
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	N	O			
5	A	1	3	1	2		0	1

- Molecule 6 is (2S)-1-[3-{[(2R)-2-hydroxypropyl]oxy}-2,2-bis({[(2R)-2-hydroxypropyl]oxy}methyl)propoxy]propan-2-ol (CCD ID: PXN) (formula: $C_{17}H_{36}O_8$).



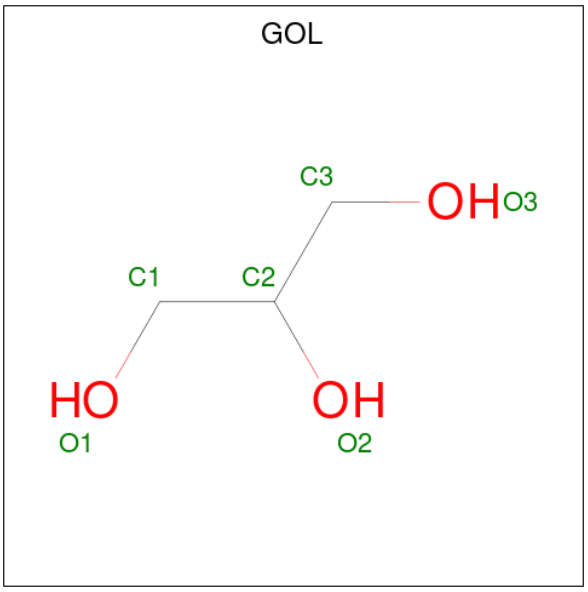
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total C O 14 10 4	0	0
6	A	1	Total C O 11 7 4	0	0

- Molecule 7 is ACETATE ION (CCD ID: ACT) (formula: $C_2H_3O_2$).



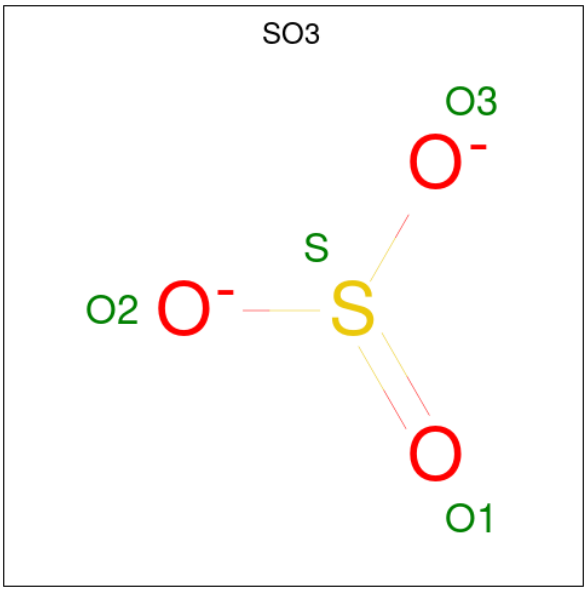
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total C O 4 2 2	0	0

- Molecule 8 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	1	Total C O 6 3 3	0	0
8	A	1	Total C O 6 3 3	0	0
8	A	1	Total C O 6 3 3	0	0

- Molecule 9 is SULFITE ION (CCD ID: SO3) (formula: O_3S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
9	A	1	Total O S 4 3 1	0	1

- Molecule 10 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
10	A	1	Total Na 1 1	0	0

- Molecule 11 is POTASSIUM ION (CCD ID: K) (formula: K).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
11	A	1	Total K 1 1	0	0

- Molecule 12 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
12	A	2	Total Cl 2 2	0	0

- Molecule 13 is water.

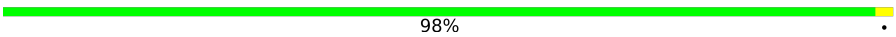
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
13	A	789	Total O 789 789	0	52

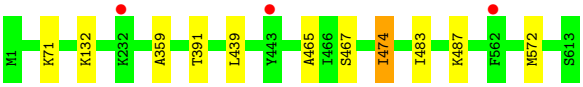
3 Residue-property plots (i)

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

- Molecule 1: Coenzyme F420 hydrogenase/dehydrogenase beta subunit domain protein

Chain A:





4 Data and refinement statistics (i)

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, α, β, γ	101.76Å 113.00Å 135.80Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	42.02 – 1.20 42.02 – 1.21	Depositor EDS
% Data completeness (in resolution range)	73.2 (42.02-1.20) 73.3 (42.02-1.21)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	0.72 (at 1.20Å)	Xtriage
Refinement program	PHENIX (1.21.2_5419: ???)	Depositor
R, R_{free}	0.116 , 0.143 0.116 , 0.143	Depositor DCC
R_{free} test set	8740 reflections (3.65%)	wwPDB-VP
Wilson B-factor (Å^2)	13.7	Xtriage
Anisotropy	0.019	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.39 , 40.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.98	EDS
Total number of atoms	11252	wwPDB-VP
Average B, all atoms (Å^2)	21.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.62% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: FAD, SF4, ACT, GOL, NA, SRM, CL, PXN, SO3, K, NO2

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	0.63	0/5213	0.80	0/6974

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5034	5207	5140	4	0
2	A	53	0	31	0	0
3	A	48	0	0	0	0
4	A	63	0	34	0	0
5	A	3	0	0	0	0
6	A	25	0	31	0	0
7	A	4	0	3	0	0
8	A	18	0	24	0	0
9	A	4	0	0	0	0
10	A	1	0	0	0	0
11	A	1	0	0	0	0
12	A	2	0	0	0	0
13	A	789	0	0	0	0
All	All	6045	5207	5263	4	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 0.

All (4) 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:A:439:LEU:HD22	1:A:487[B]:LYS:HE2	1.92	0.50
1:A:359:ALA:HB2	1:A:391:THR:HB	1.93	0.49
1:A:483:ILE:HD13	1:A:572[B]:MET:SD	2.54	0.47
1:A:465:ALA:HB1	1:A:474:ILE:HD13	2.02	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	638/613 (104%)	624 (98%)	13 (2%)	1 (0%)	43 16

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	132	LYS

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	559/532 (105%)	556 (100%)	3 (0%)	81 59

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	71	LYS
1	A	467	SER
1	A	474	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 20 ligands modelled in this entry, 4 are monoatomic - leaving 16 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	SF4	A	705	1	0,12,12	-	-	-		
8	GOL	A	712	-	5,5,5	0.09	0	5,5,5	0.32	0
9	SO3	A	716[B]	4	1,3,3	1.28	0	0,3,3	-	-

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
7	ACT	A	711	-	3,3,3	0.64	0	3,3,3	1.41	0
3	SF4	A	707	1	0,12,12	-	-	-		
8	GOL	A	713	-	5,5,5	0.09	0	5,5,5	0.34	0
8	GOL	A	714	-	5,5,5	0.08	0	5,5,5	0.30	0
5	NO2	A	709[A]	4	1,2,2	0.48	0	0,1,1	-	-
6	PXN	A	710	-	11,13,24	0.17	0	9,15,30	1.30	1 (11%)
3	SF4	A	702	1	0,12,12	-	-	-		
6	PXN	A	715	-	9,10,24	0.26	0	7,11,30	0.37	0
3	SF4	A	708	1	0,12,12	-	-	-		
3	SF4	A	706	1	0,12,12	-	-	-		
4	SRM	A	703	9,1,5	70,70,70	2.05	14 (20%)	89,112,112	1.56	12 (13%)
2	FAD	A	701	-	56,58,58	0.52	0	81,89,89	0.85	3 (3%)
3	SF4	A	704	1	0,12,12	-	-	-		

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	SF4	A	705	1	-	-	0/6/5/5
8	GOL	A	712	-	-	4/4/4/4	-
8	GOL	A	713	-	-	3/4/4/4	-
3	SF4	A	707	1	-	-	0/6/5/5
8	GOL	A	714	-	-	1/4/4/4	-
6	PXN	A	710	-	-	8/12/12/28	-
6	PXN	A	715	-	-	5/10/10/28	-
3	SF4	A	702	1	-	-	0/6/5/5
3	SF4	A	708	1	-	-	0/6/5/5
3	SF4	A	706	1	-	-	0/6/5/5
4	SRM	A	703	9,1,5	1/1/19/23	13/38/126/126	-
2	FAD	A	701	-	-	1/34/50/50	0/6/6/6
3	SF4	A	704	1	-	-	0/6/5/5

All (14) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	703	SRM	C4A-NA	-9.15	1.28	1.35
4	A	703	SRM	C3C-C2C	4.84	1.47	1.36
4	A	703	SRM	CHC-C1C	4.58	1.47	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	703	SRM	CHD-C4C	4.23	1.46	1.38
4	A	703	SRM	CHA-C4D	3.70	1.47	1.39
4	A	703	SRM	FE-ND	3.38	2.06	1.95
4	A	703	SRM	CHD-C1D	3.35	1.46	1.39
4	A	703	SRM	C4D-ND	-3.22	1.33	1.39
4	A	703	SRM	FE-NC	3.03	2.05	1.95
4	A	703	SRM	C1C-NC	-3.01	1.33	1.39
4	A	703	SRM	C4C-NC	-2.98	1.34	1.39
4	A	703	SRM	C1D-ND	-2.89	1.34	1.39
4	A	703	SRM	CHB-C4A	2.80	1.47	1.39
4	A	703	SRM	CHC-C4B	-2.24	1.32	1.39

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	703	SRM	C3C-C4C-NC	4.13	114.34	110.32
4	A	703	SRM	C2C-C1C-NC	3.79	114.01	110.32
4	A	703	SRM	C1D-C2D-C3D	-3.73	102.87	106.84
4	A	703	SRM	C2D-C1D-ND	3.56	114.13	110.15
4	A	703	SRM	C4D-C3D-C2D	-3.54	103.06	106.84
6	A	710	PXN	CAN-CAM-CAC	-3.47	105.13	111.32
4	A	703	SRM	C4C-C3C-C2C	-3.44	102.88	106.86
4	A	703	SRM	C3D-C4D-ND	3.43	113.98	110.15
4	A	703	SRM	C1C-C2C-C3C	-3.22	103.14	106.86
2	A	701	FAD	C4-N3-C2	-2.56	120.92	125.64
4	A	703	SRM	C2A-C1A-CHA	-2.46	121.30	123.54
4	A	703	SRM	O4A-CEA-CDA	2.41	122.10	114.35
4	A	703	SRM	CHC-C1C-NC	-2.36	121.88	124.44
2	A	701	FAD	O4B-C1B-C2B	-2.27	101.70	106.64
4	A	703	SRM	C3A-C4A-NA	2.13	115.04	110.85
2	A	701	FAD	O2B-C2B-C1B	2.13	117.14	110.02

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
4	A	703	SRM	NC

All (35) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	710	PXN	OAD-CAC-CAM-CAL
6	A	710	PXN	OAD-CAC-CAM-CAN

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Continued from previous page...

Mol	Chain	Res	Type	Atoms
6	A	710	PXN	CAL-CAM-CAN-OAO
8	A	713	GOL	O1-C1-C2-C3
4	A	703	SRM	C4C-C3C-CAC-CBC
6	A	710	PXN	OAD-CAE-CAF-OAG
4	A	703	SRM	C2A-C3A-CAA-CBA
4	A	703	SRM	C4A-C3A-CAA-CBA
4	A	703	SRM	C2C-C3C-CAC-CBC
6	A	710	PXN	CAM-CAC-OAD-CAE
8	A	712	GOL	O1-C1-C2-C3
8	A	712	GOL	C1-C2-C3-O3
8	A	712	GOL	O1-C1-C2-O2
8	A	713	GOL	O1-C1-C2-O2
4	A	703	SRM	C4D-C3D-CDD-CED
6	A	710	PXN	OAD-CAE-CAF-CAA
6	A	715	PXN	OAK-CAL-CAM-CAN
6	A	715	PXN	CAL-CAM-CAN-OAO
4	A	703	SRM	C3C-CAC-CBC-CCC
6	A	715	PXN	OAD-CAC-CAM-CAL
6	A	710	PXN	CAC-CAM-CAN-OAO
4	A	703	SRM	C3A-CAA-CBA-CCA
4	A	703	SRM	C2A-CDA-CEA-O4A
6	A	710	PXN	CAQ-CAP-OAO-CAN
4	A	703	SRM	C2A-CDA-CEA-O3A
8	A	712	GOL	O2-C2-C3-O3
4	A	703	SRM	CAB-CBB-CCB-O2B
4	A	703	SRM	CAB-CBB-CCB-O1B
6	A	715	PXN	OAD-CAC-CAM-CAN
4	A	703	SRM	C4B-C3B-CAB-CBB
6	A	715	PXN	CAF-CAE-OAD-CAC
2	A	701	FAD	O4B-C4B-C5B-O5B
8	A	713	GOL	C1-C2-C3-O3
8	A	714	GOL	O1-C1-C2-C3
4	A	703	SRM	CAC-CBC-CCC-O2C

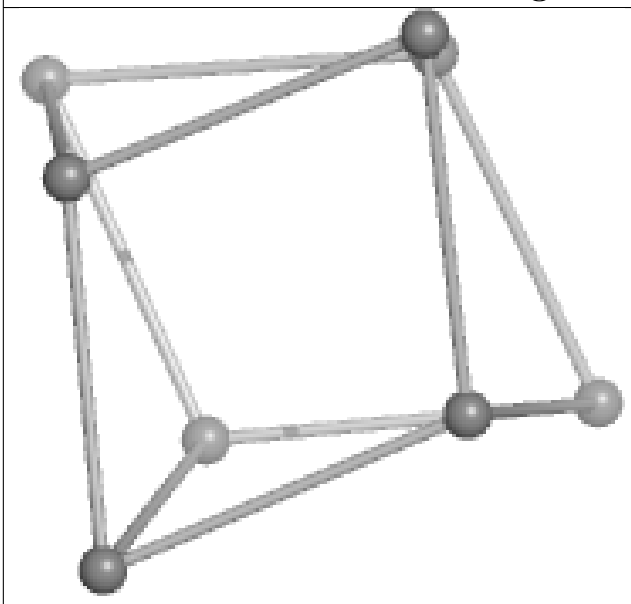
There are no ring outliers.

No monomer is involved in short contacts.

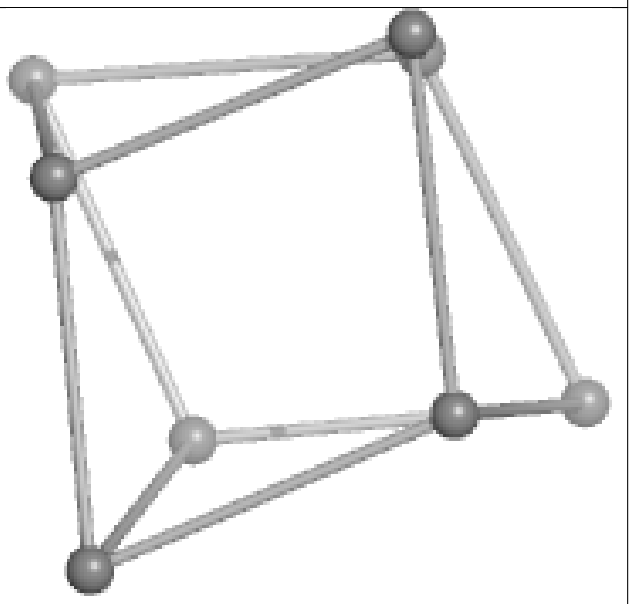
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be

highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

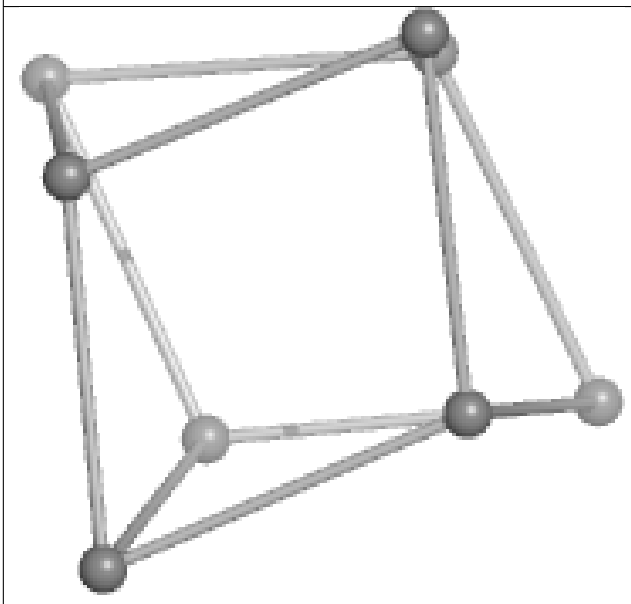
Ligand SF4 A 705



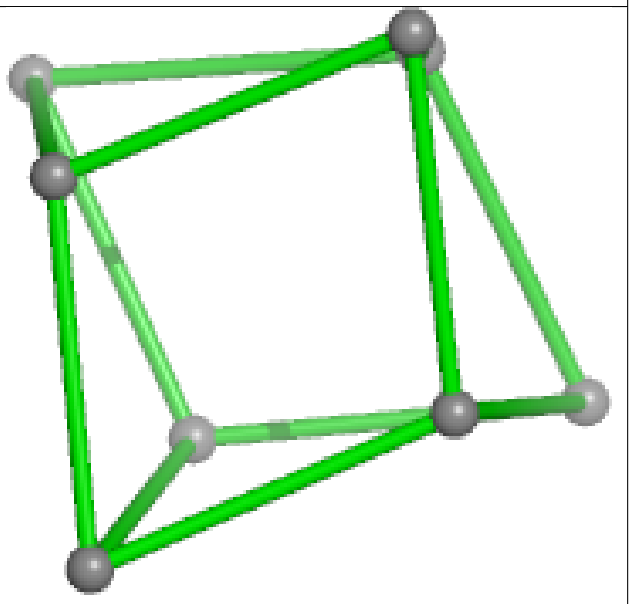
Bond lengths



Bond angles

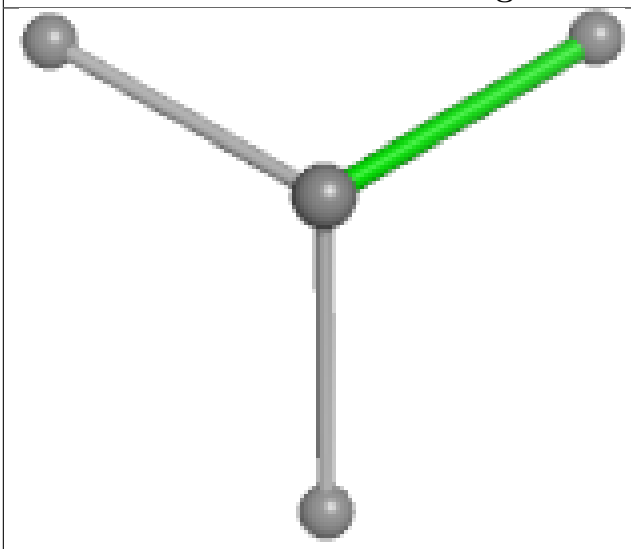


Torsions

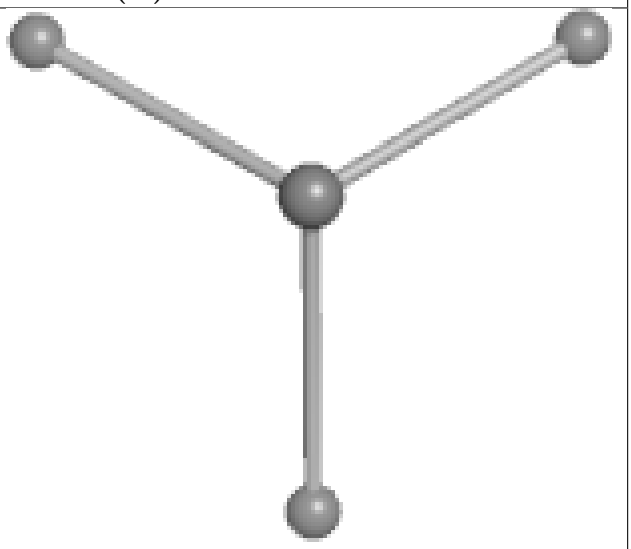


Rings

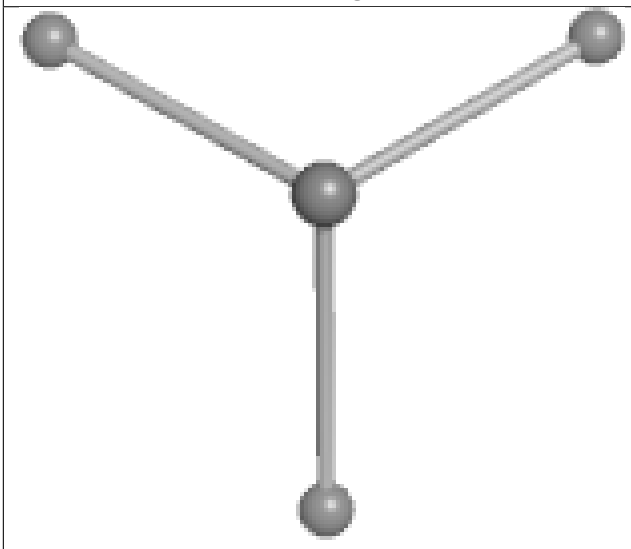
Ligand SO3 A 716 (B)



Bond lengths



Bond angles



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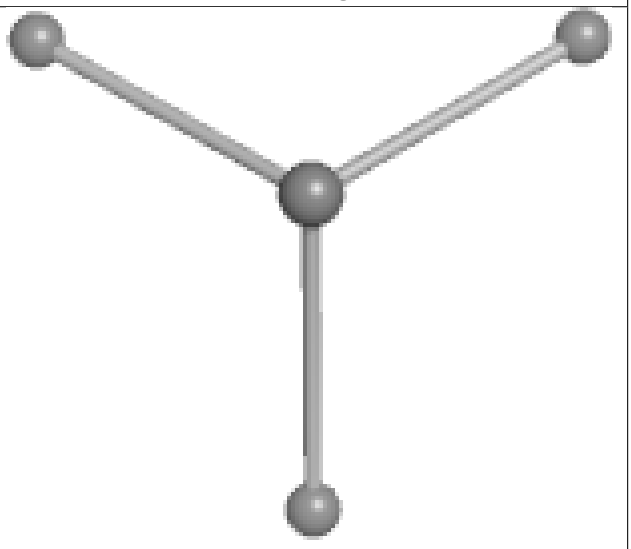
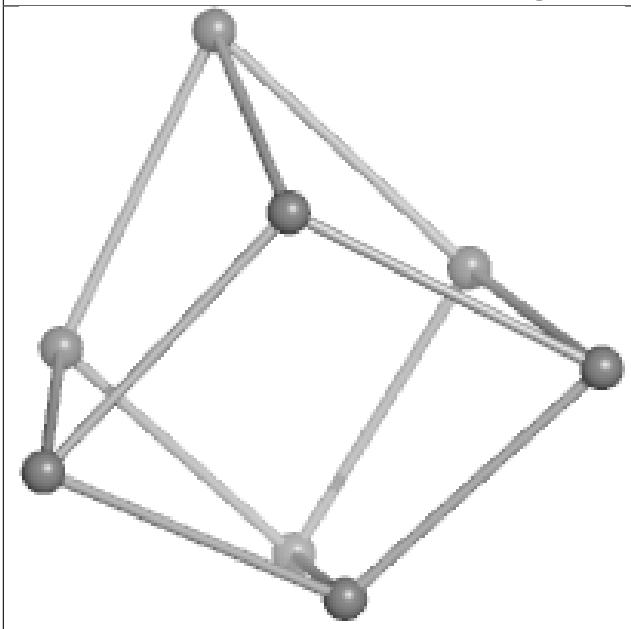
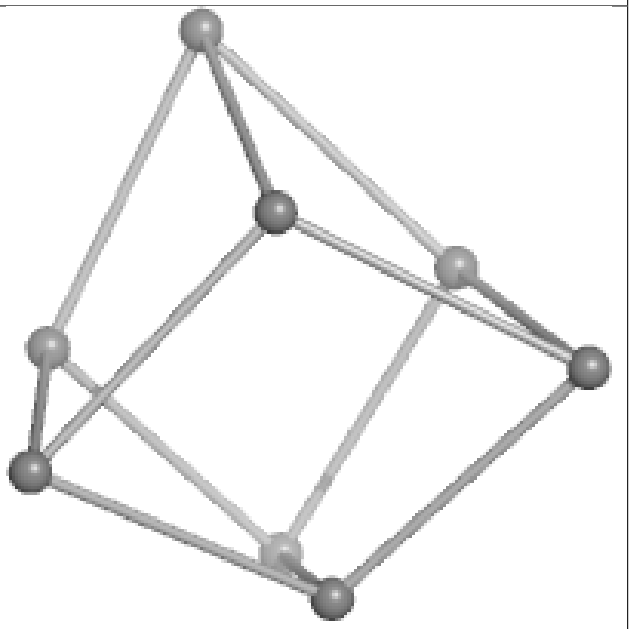


Rings

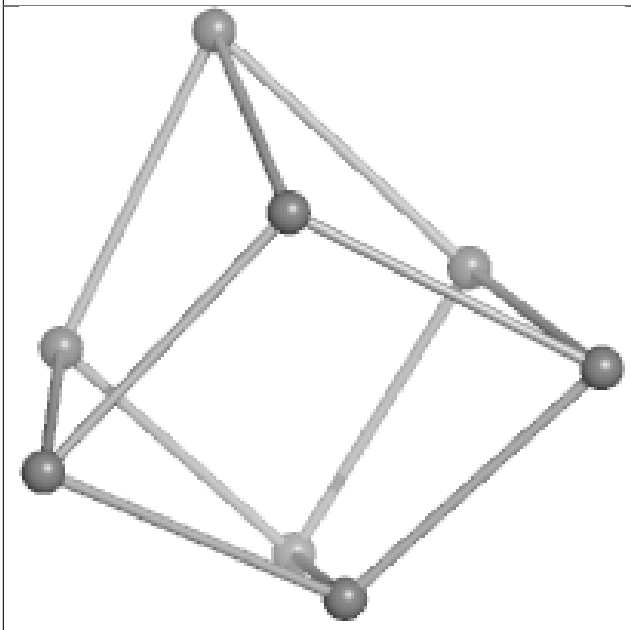
Ligand SF4 A 707



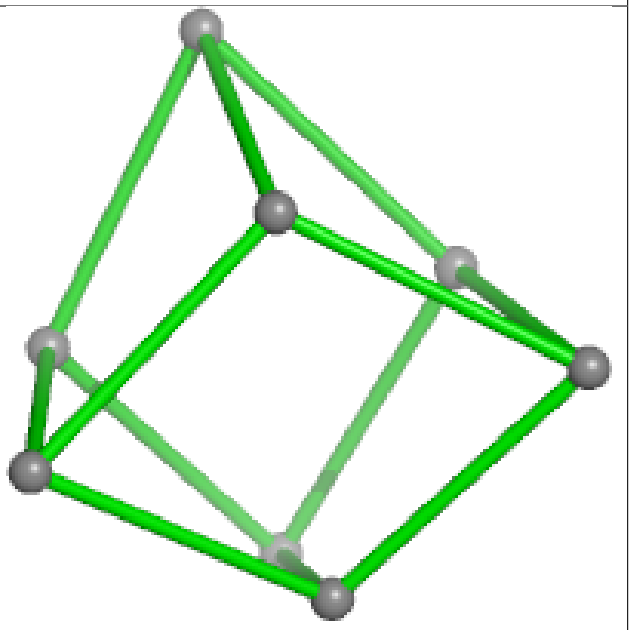
Bond lengths



Bond angles

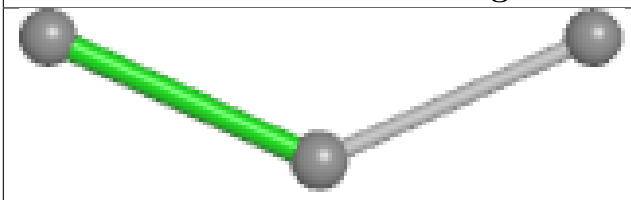


Torsions

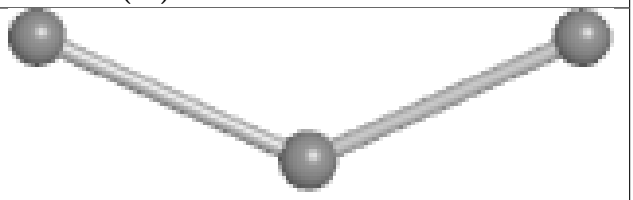


Rings

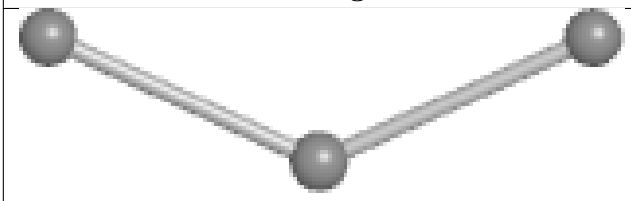
Ligand NO2 A 709 (A)



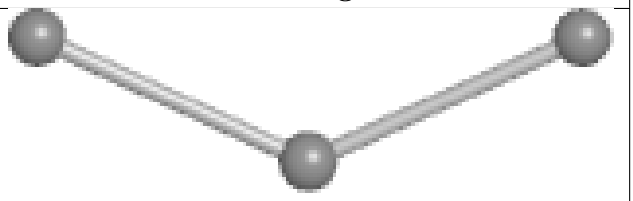
Bond lengths



Bond angles

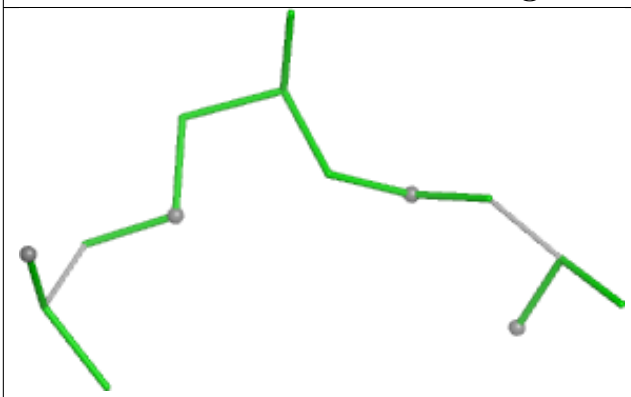


Torsions



Rings

Ligand PXN A 710



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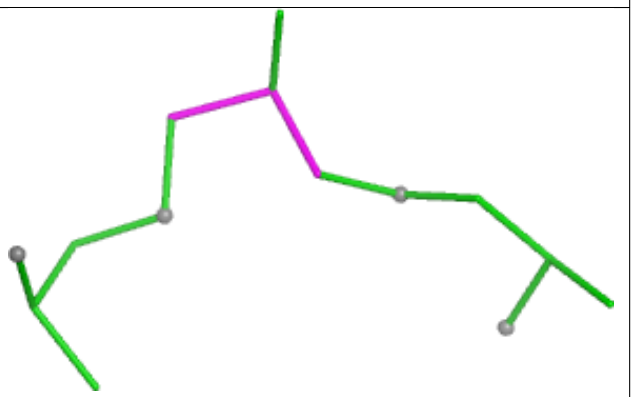

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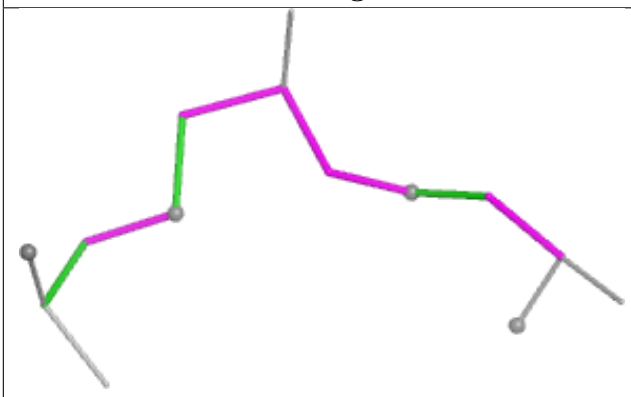

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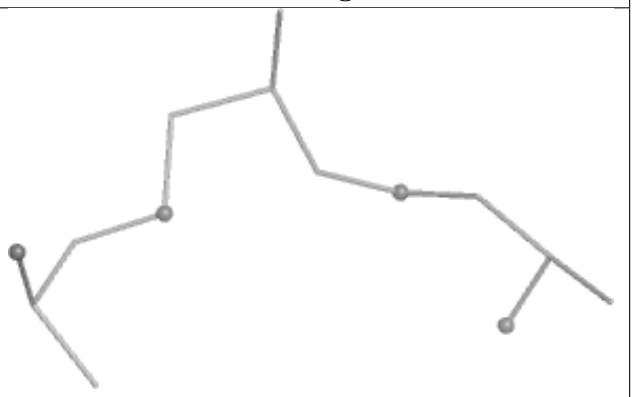
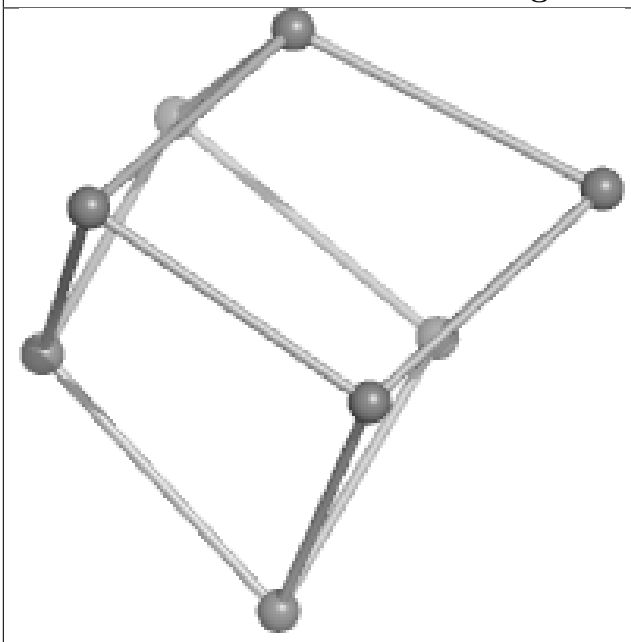
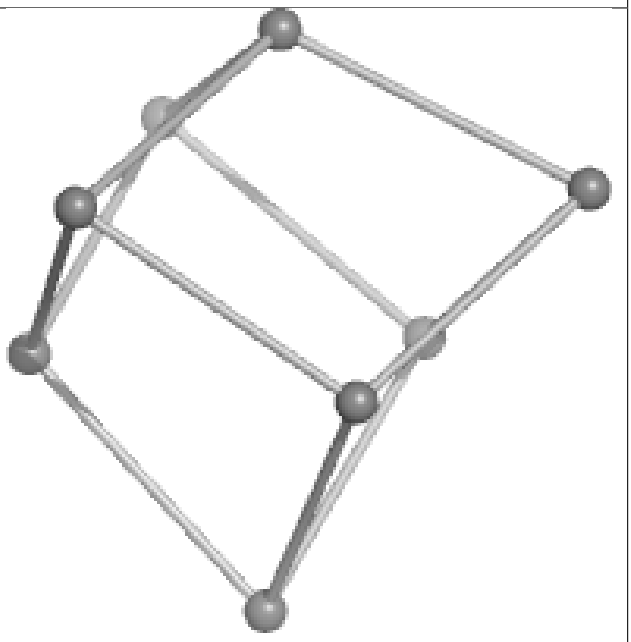


Rings

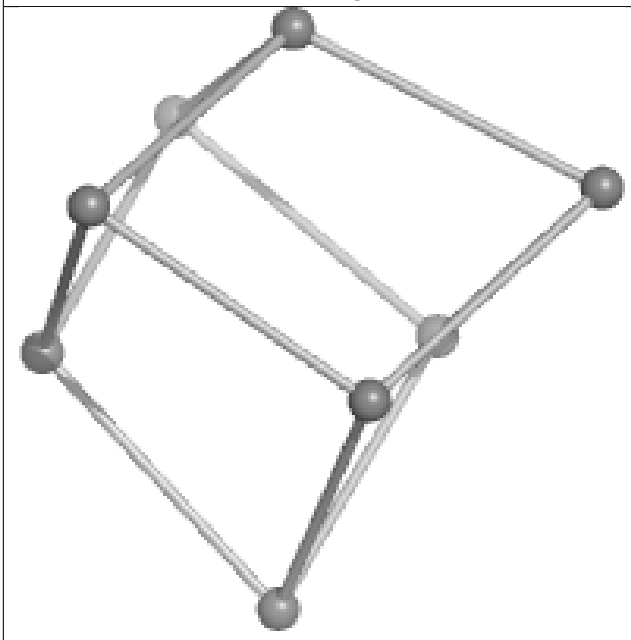
Ligand SF4 A 702



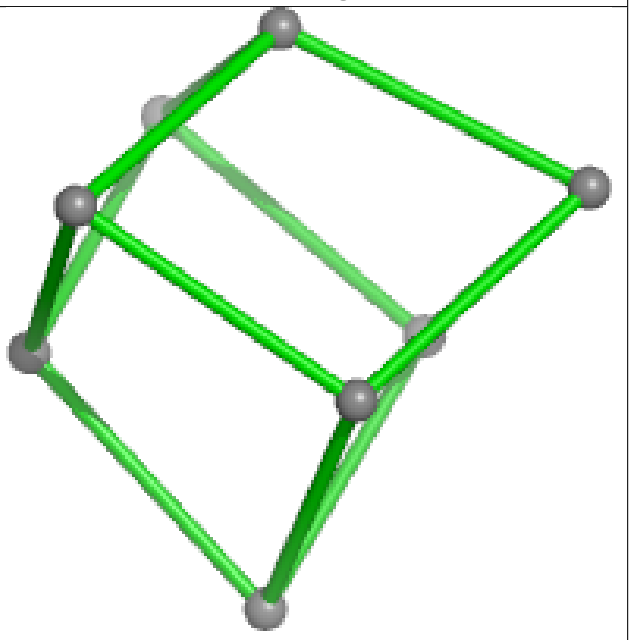
Bond lengths



Bond angles

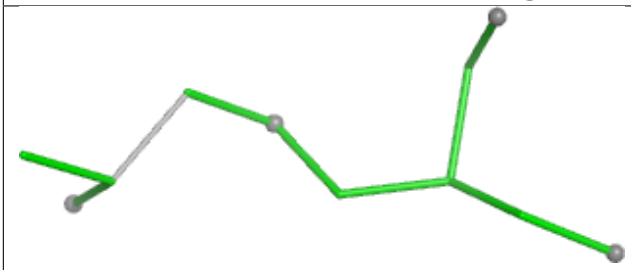


Torsions

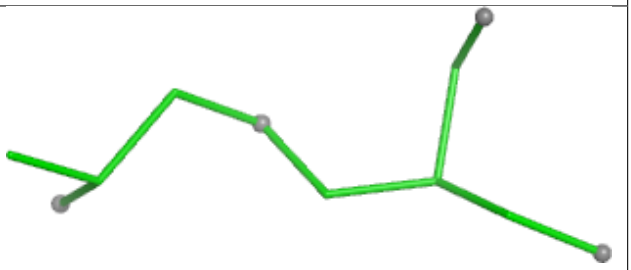


Rings

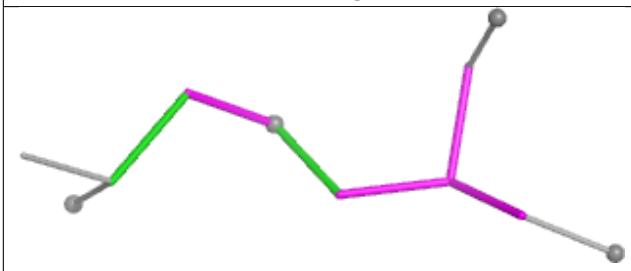
Ligand PXN A 715



Bond lengths



Bond angles



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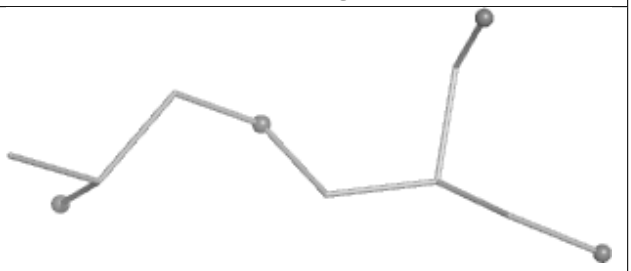
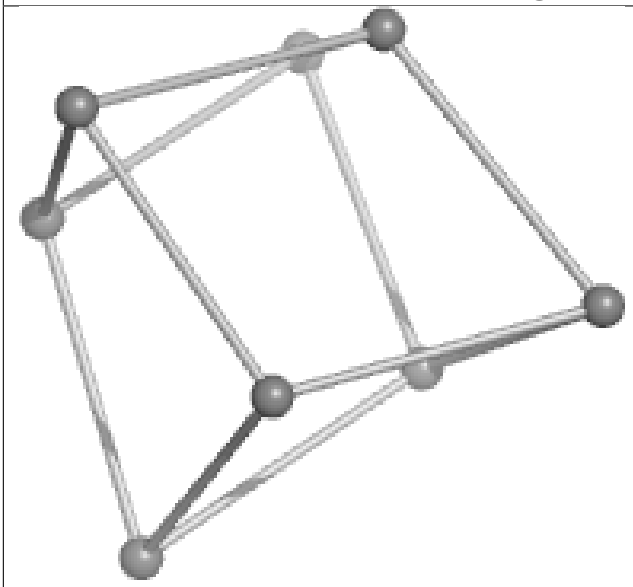
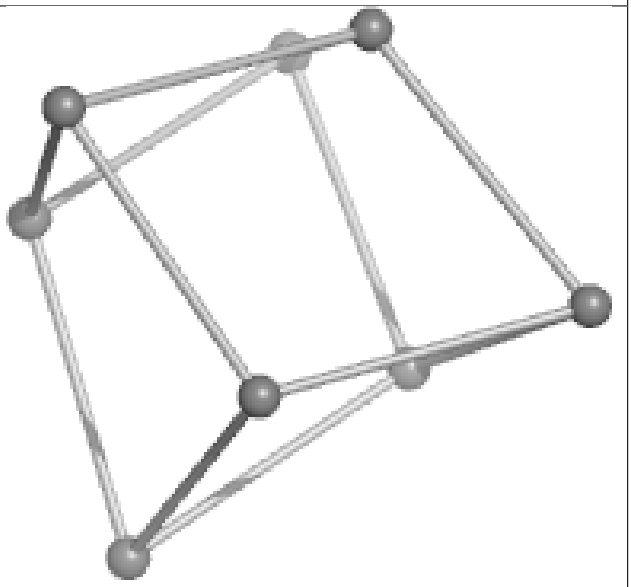


Rings

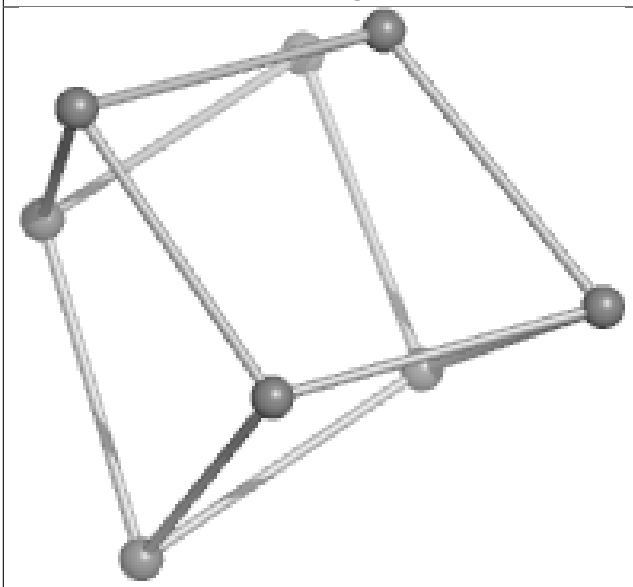
Ligand SF4 A 708



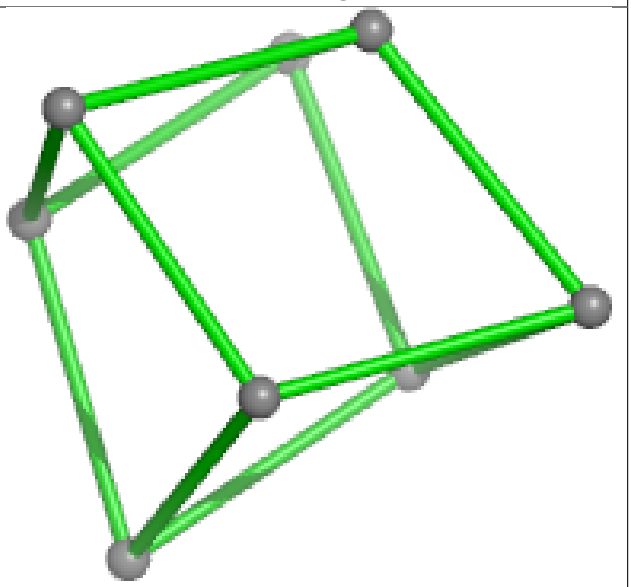
Bond lengths



Bond angles

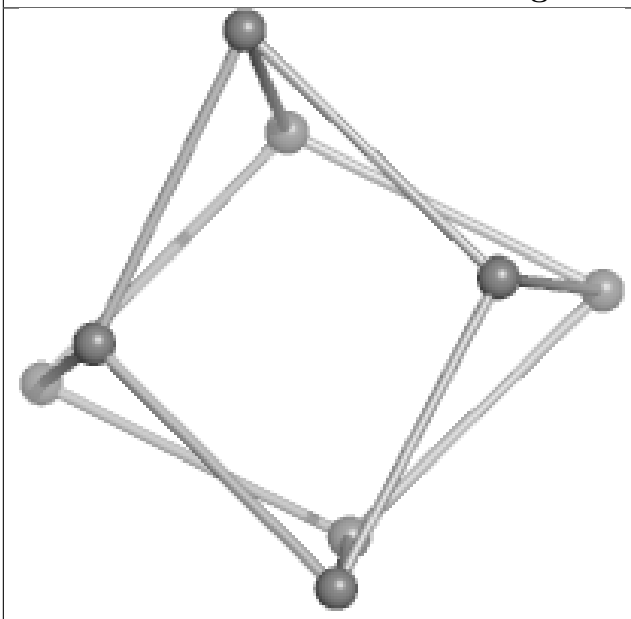


Torsions

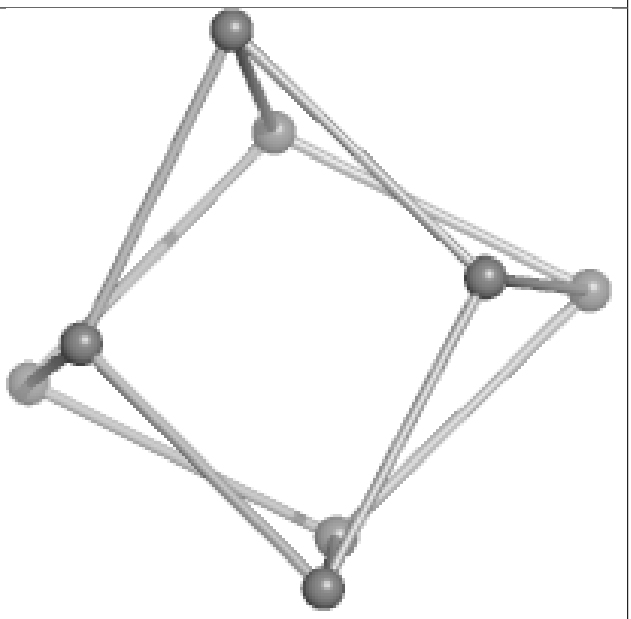


Rings

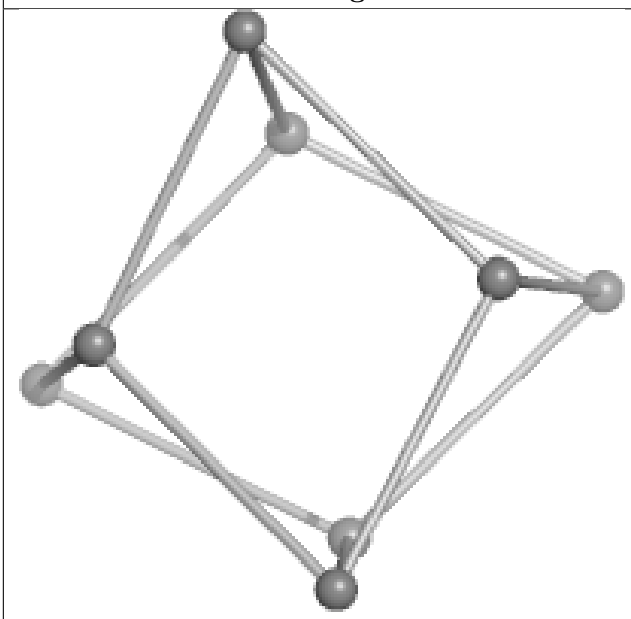
Ligand SF4 A 706



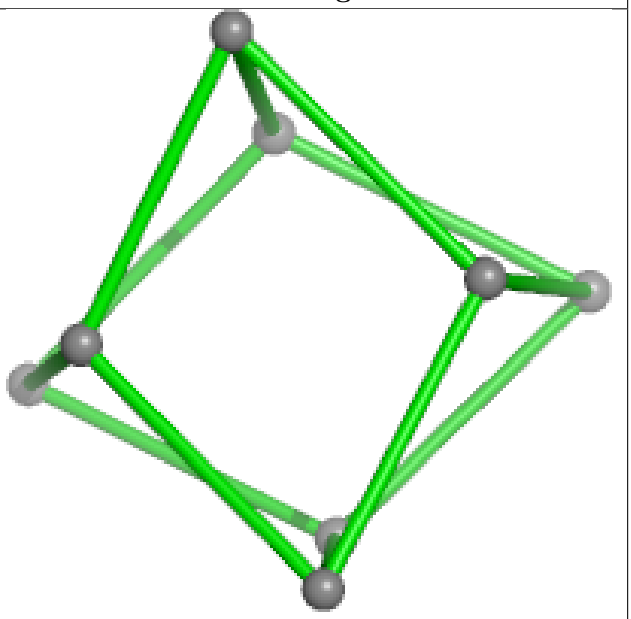
Bond lengths



Bond angles

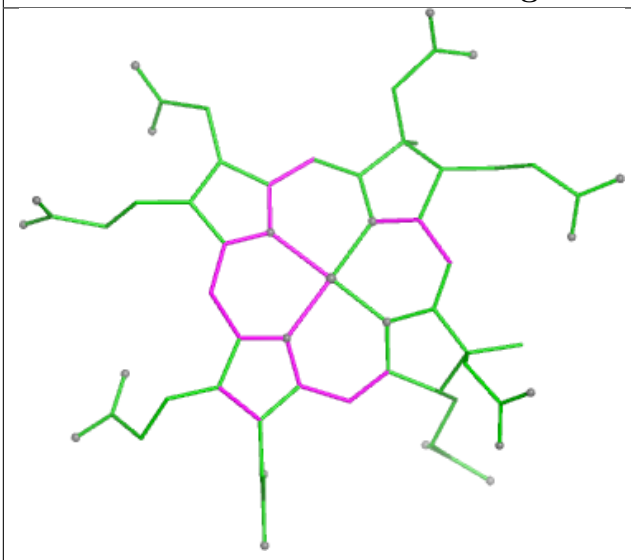


Torsions

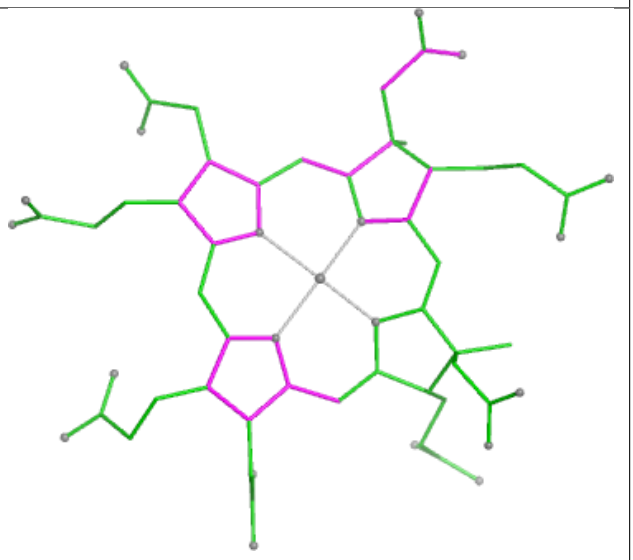


Rings

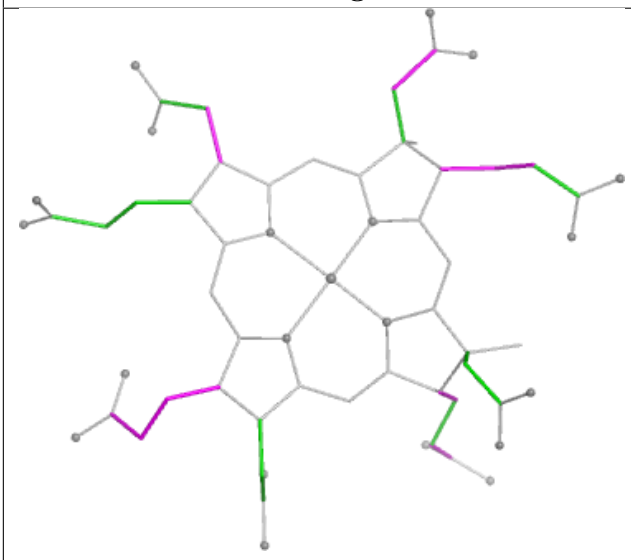
Ligand SRM A 703



Bond lengths



Bond angles



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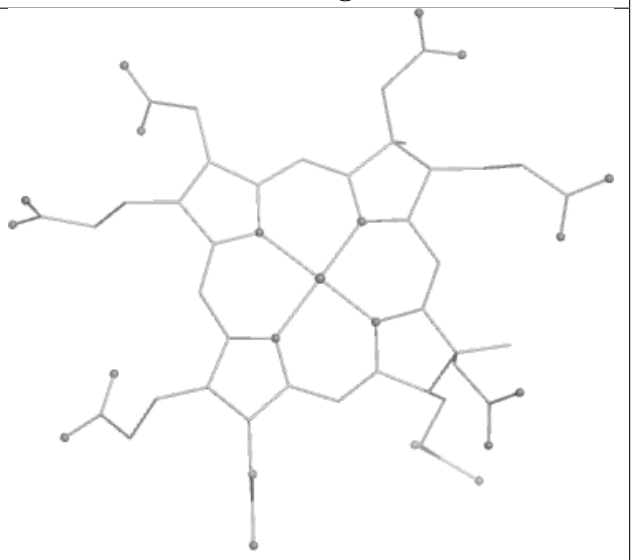
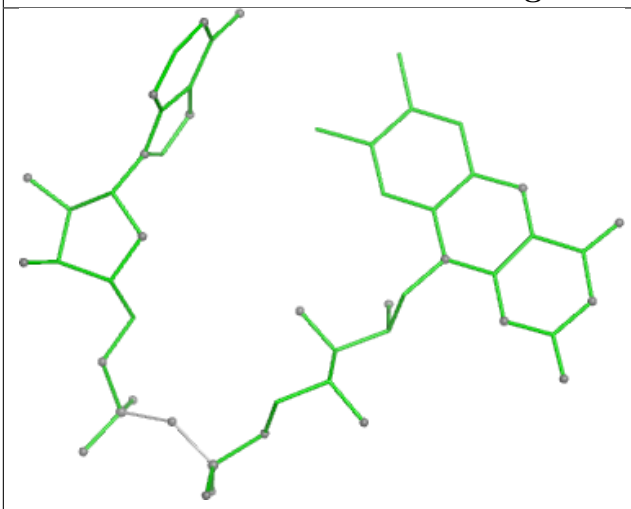


Rings

Ligand FAD A 701



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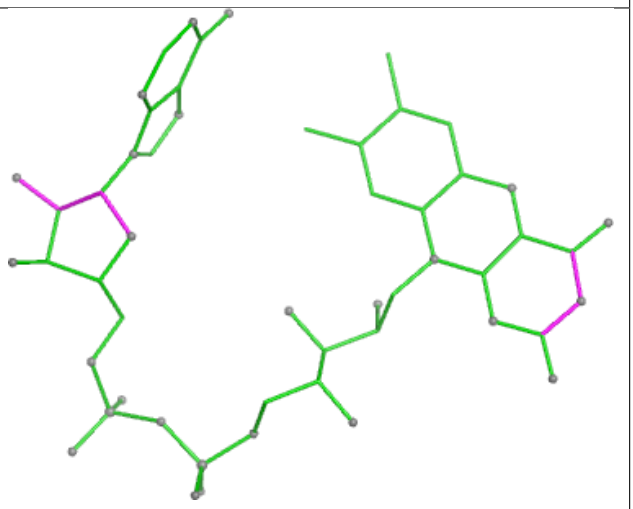
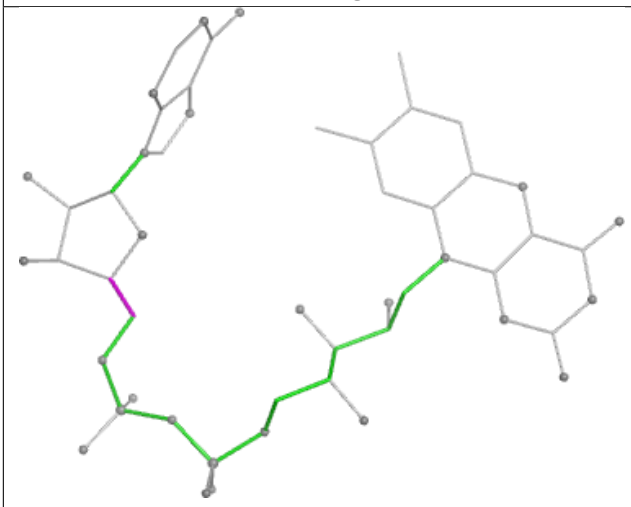


Bond angles



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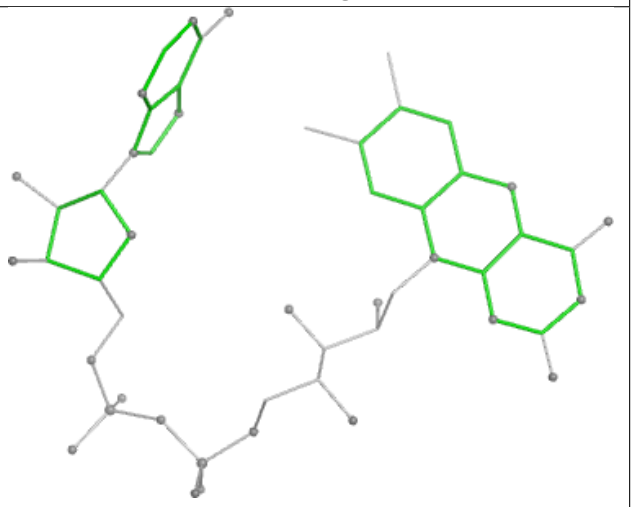
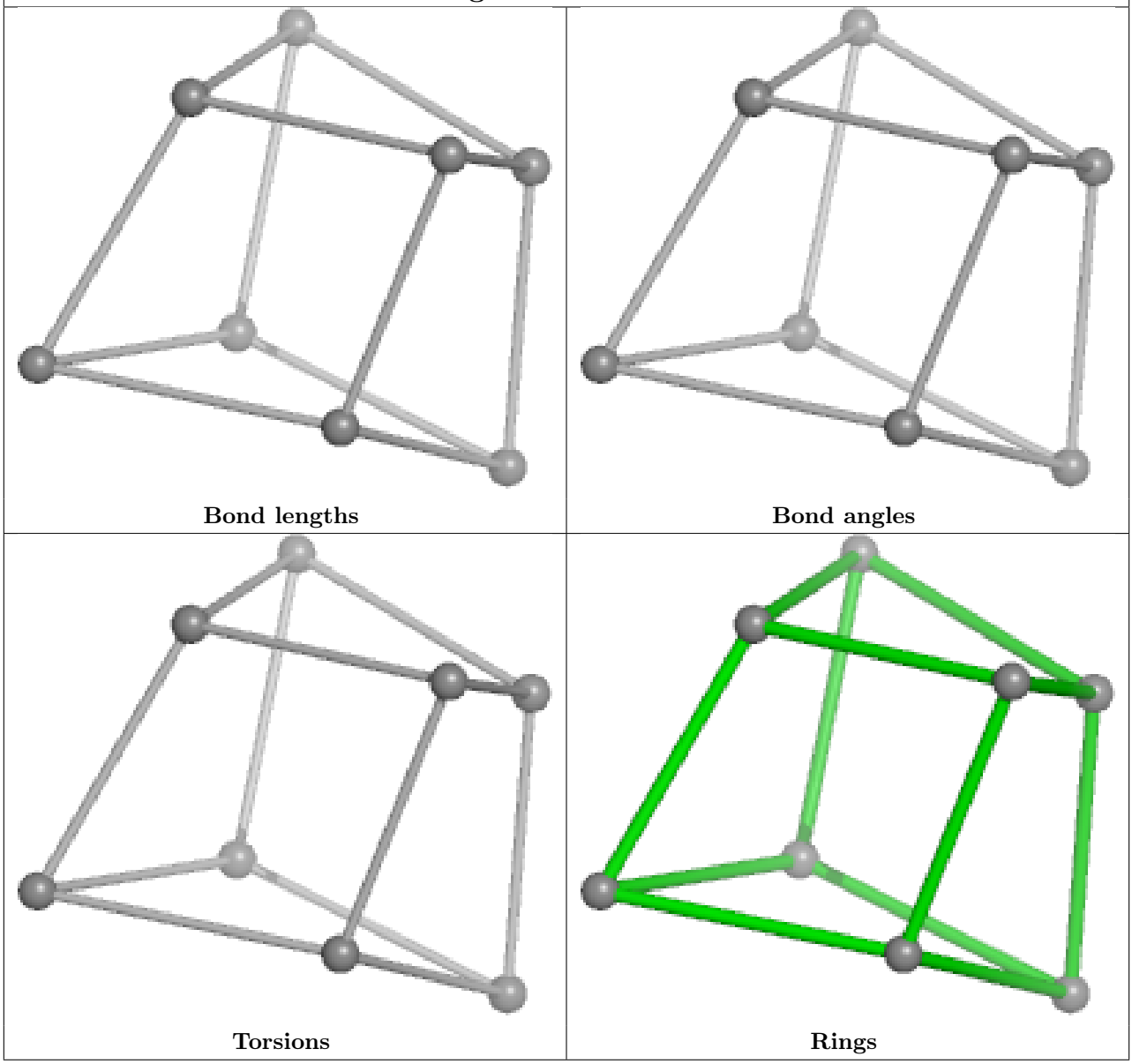


Rings

Ligand SF4 A 704



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 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	613/613 (100%)	-0.52	3 (0%) 87 89	6, 18, 37, 59	18 (2%)

All (3) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	562	PHE	2.7
1	A	443	TYR	2.5
1	A	232	LYS	2.5

6.2 Non-standard residues in protein, DNA, RNA chains

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

6.3 Carbohydrates

There are no oligosaccharides in this entry.

6.4 Ligands

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
8	GOL	A	714	6/6	0.44	0.48	26,27,28,28	6
8	GOL	A	713	6/6	0.67	0.26	52,55,56,57	0
8	GOL	A	712	6/6	0.83	0.17	49,49,51,52	0
6	PXN	A	715	11/25	0.87	0.16	32,46,58,60	0

Continued on next page...

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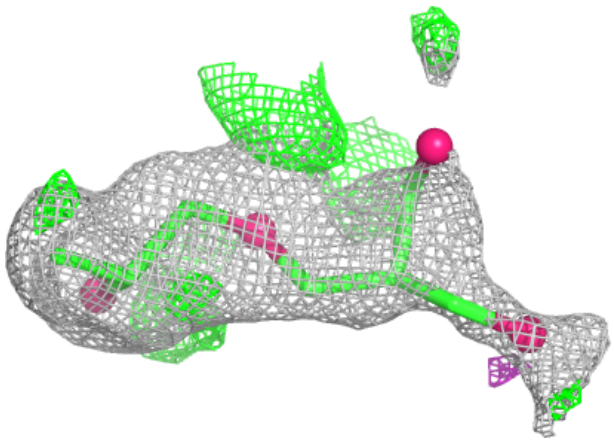
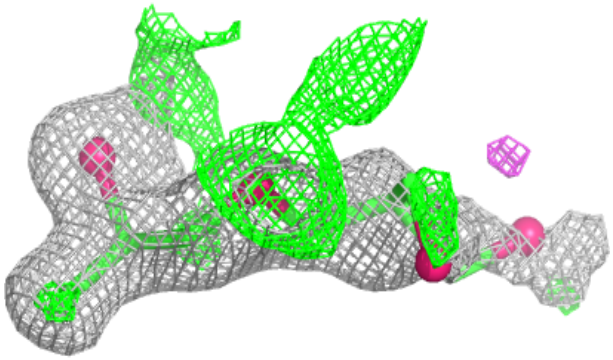
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	PXN	A	710	14/25	0.87	0.17	29,37,43,44	0
7	ACT	A	711	4/4	0.88	0.15	31,34,34,36	0
9	SO3	A	716[B]	4/4	0.91	0.15	16,18,18,19	4
12	CL	A	719	1/1	0.97	0.06	21,21,21,21	0
5	NO2	A	709[A]	3/3	0.98	0.05	9,9,17,18	3
4	SRM	A	703	63/63	0.99	0.05	10,12,18,23	0
2	FAD	A	701	53/53	0.99	0.03	12,14,16,20	0
3	SF4	A	707	8/8	1.00	0.01	11,11,12,12	0
3	SF4	A	708	8/8	1.00	0.01	12,13,14,14	0
3	SF4	A	702	8/8	1.00	0.01	12,12,12,13	0
3	SF4	A	704	8/8	1.00	0.01	13,13,14,14	0
3	SF4	A	705	8/8	1.00	0.01	11,11,11,12	0
10	NA	A	717	1/1	1.00	0.07	17,17,17,17	0
11	K	A	718	1/1	1.00	0.02	17,17,17,17	0
3	SF4	A	706	8/8	1.00	0.01	11,12,12,12	0
12	CL	A	720	1/1	1.00	0.04	22,22,22,22	0

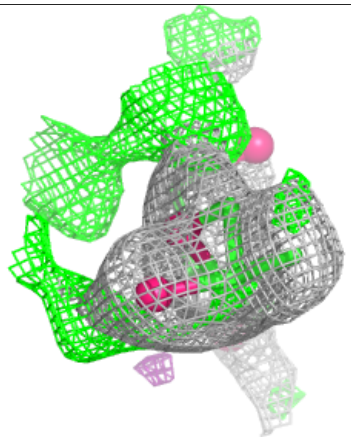
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around PXN A 715:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

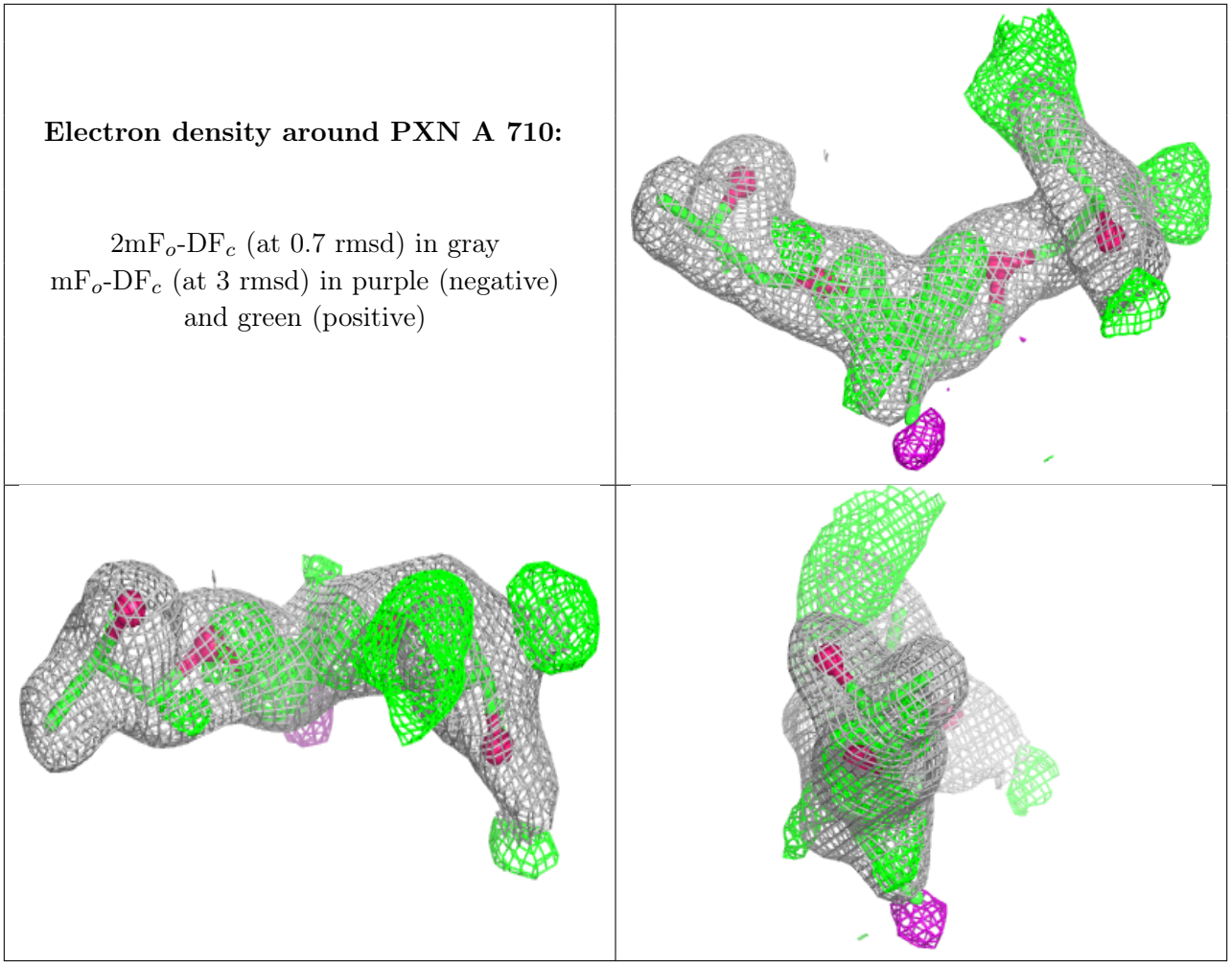






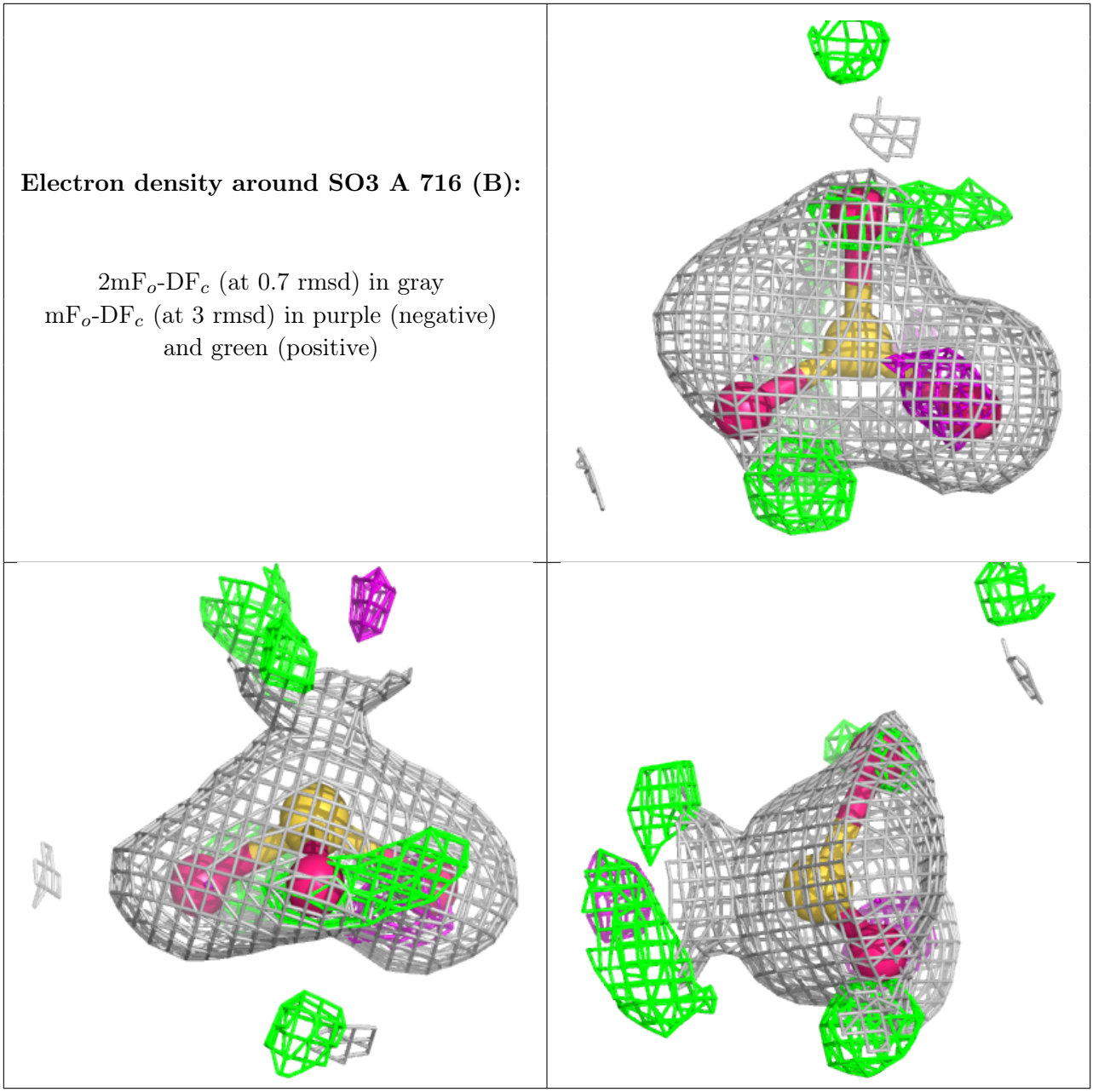
Electron density around PXN A 710:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



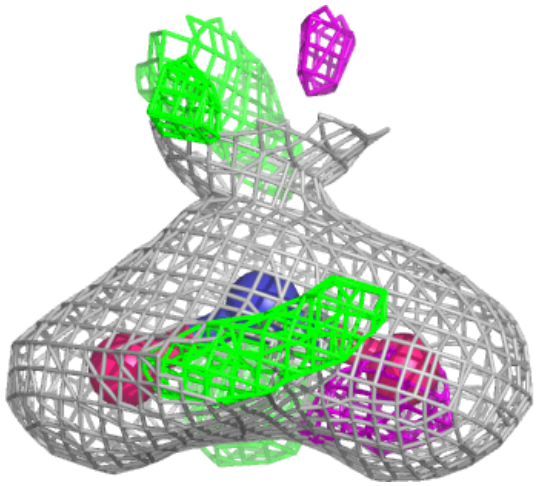
Electron density around SO3 A 716 (B):

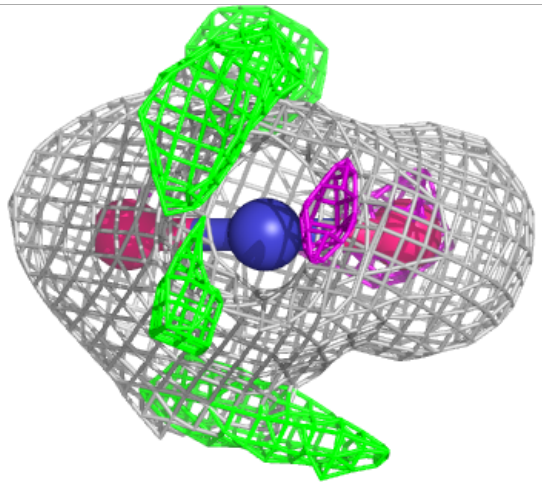
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

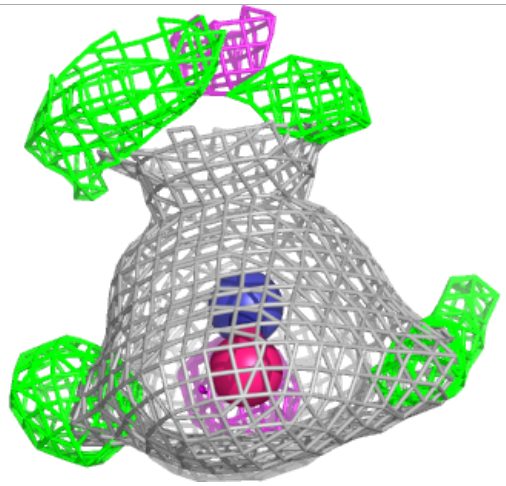


Electron density around NO2 A 709 (A):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

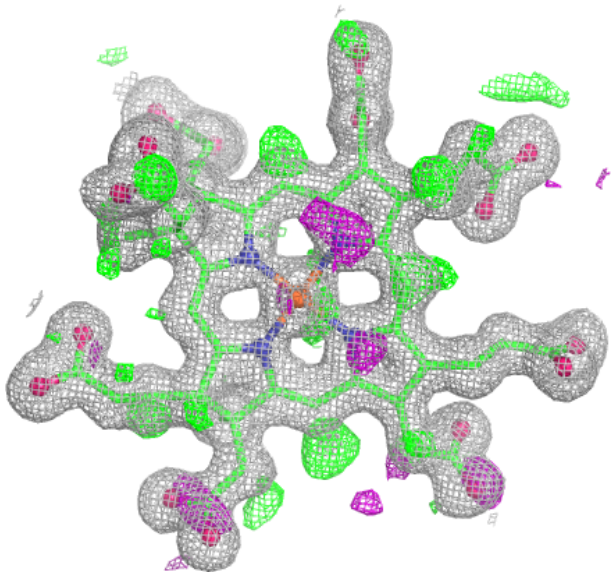


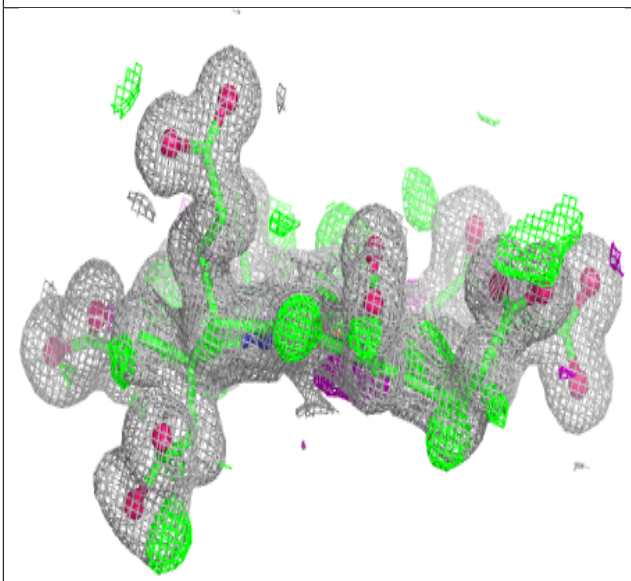


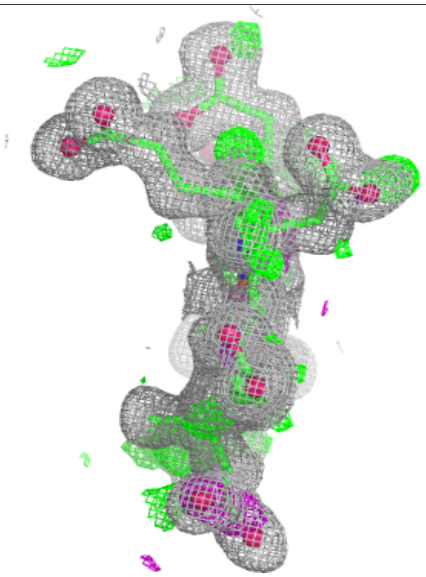


Electron density around SRM A 703:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

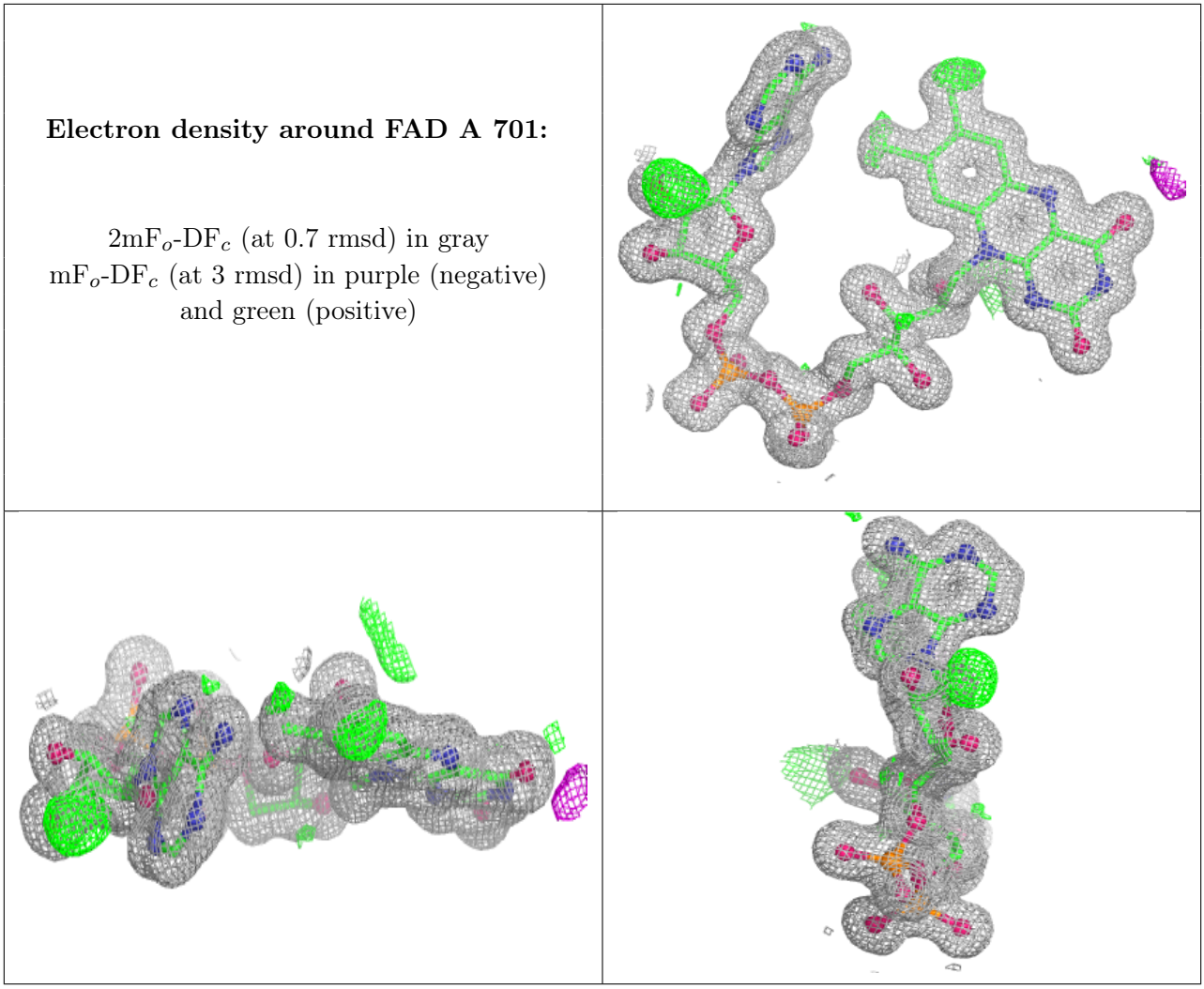






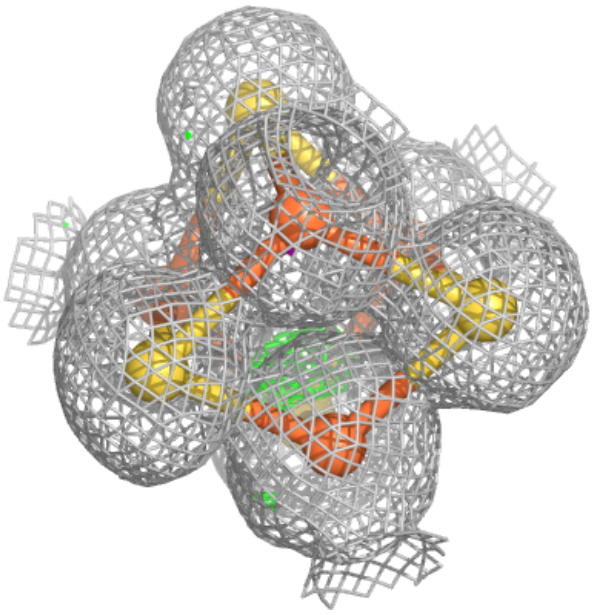
Electron density around FAD A 701:

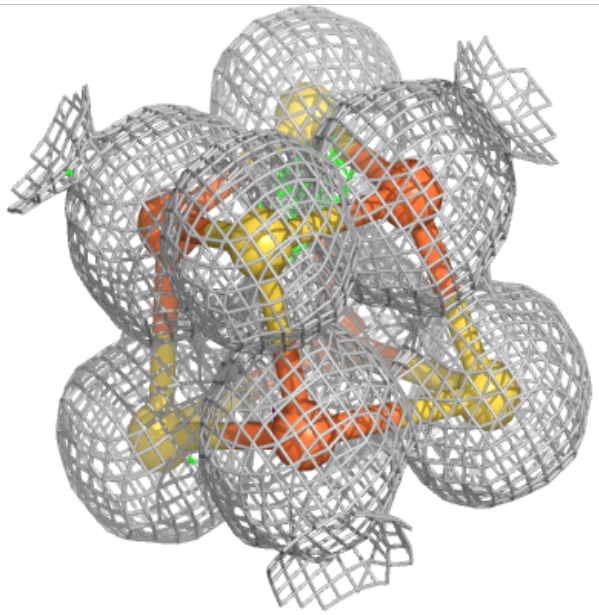
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

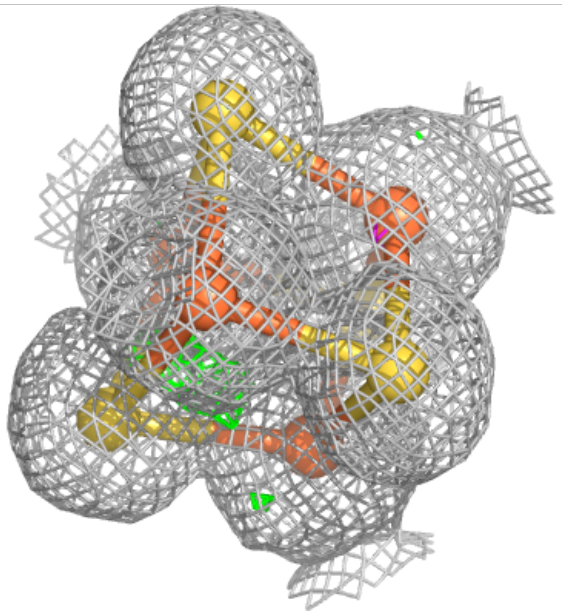


Electron density around SF4 A 707:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

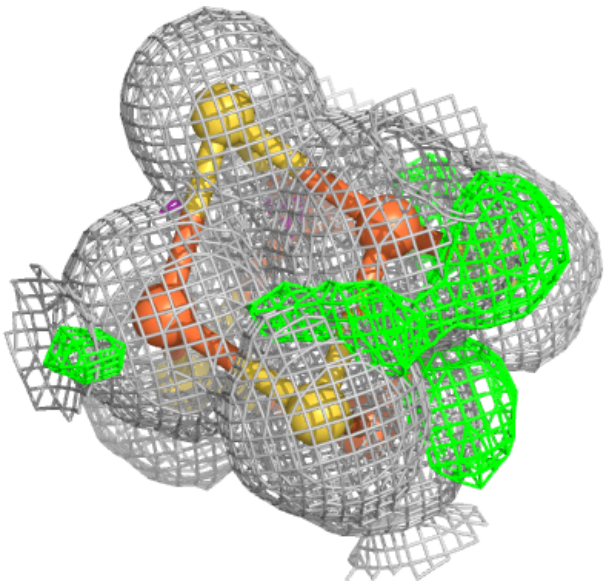


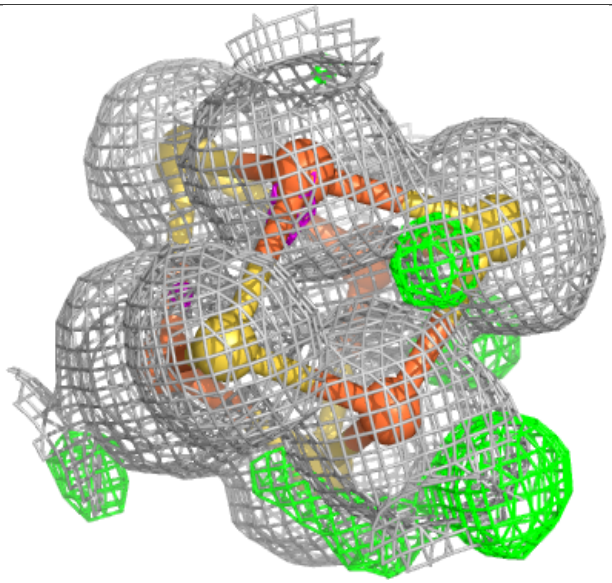


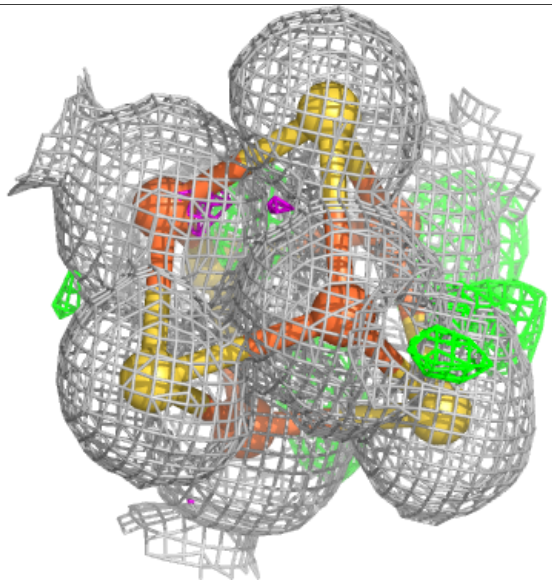


Electron density around SF4 A 708:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

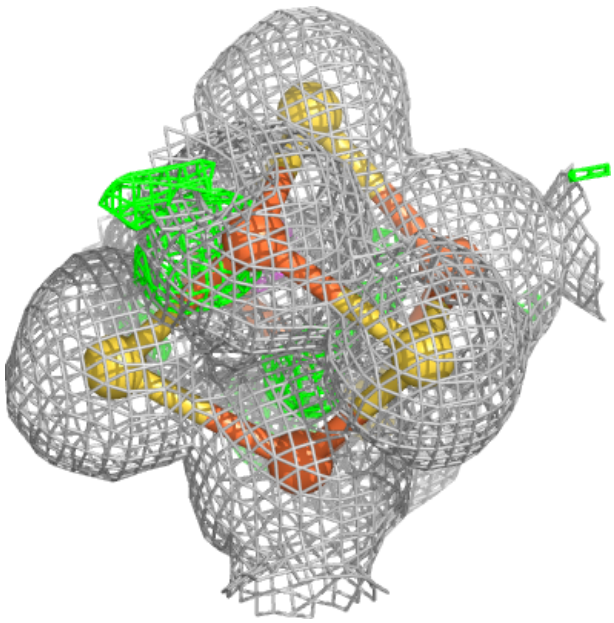


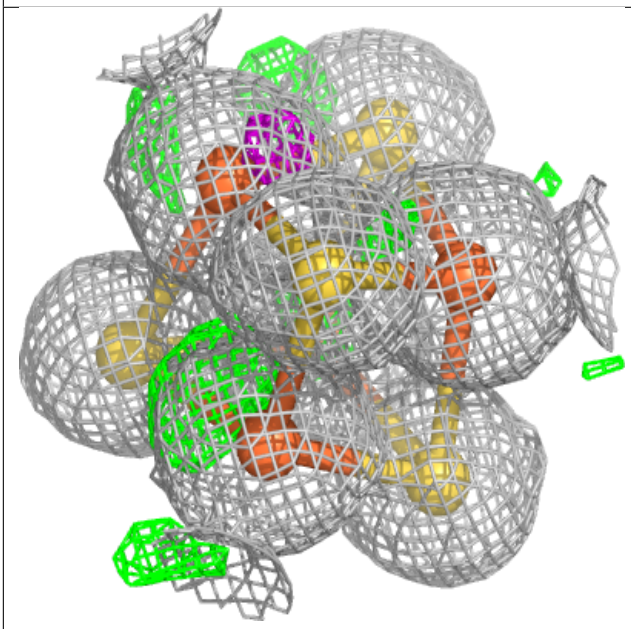


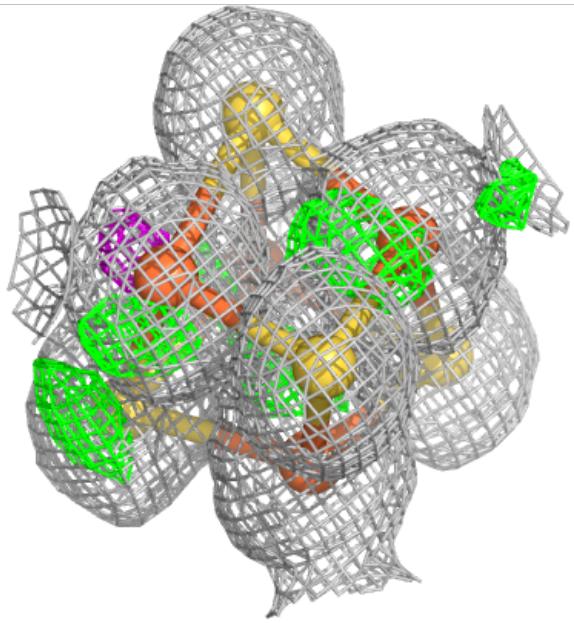


Electron density around SF4 A 702:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

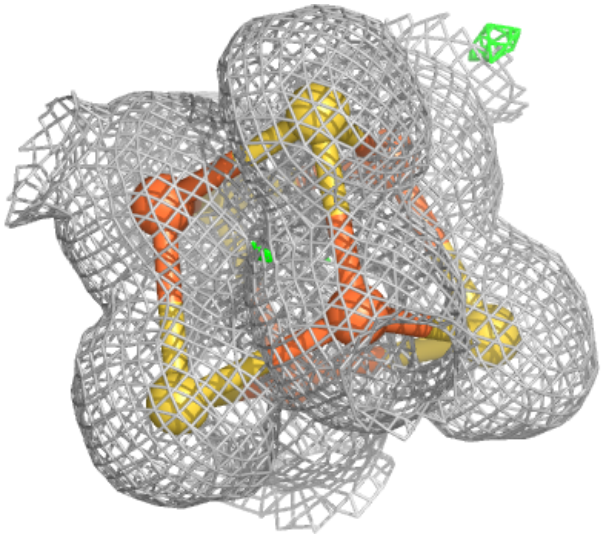


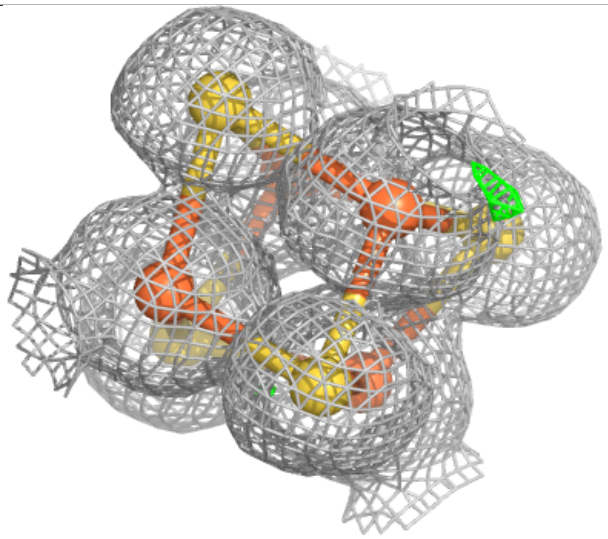


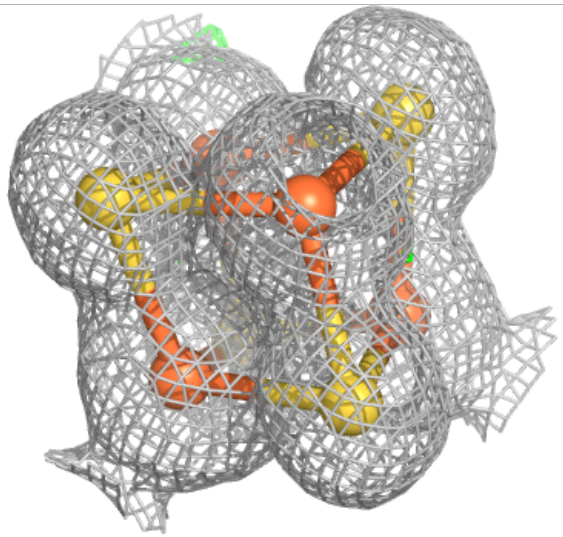


Electron density around SF4 A 704:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

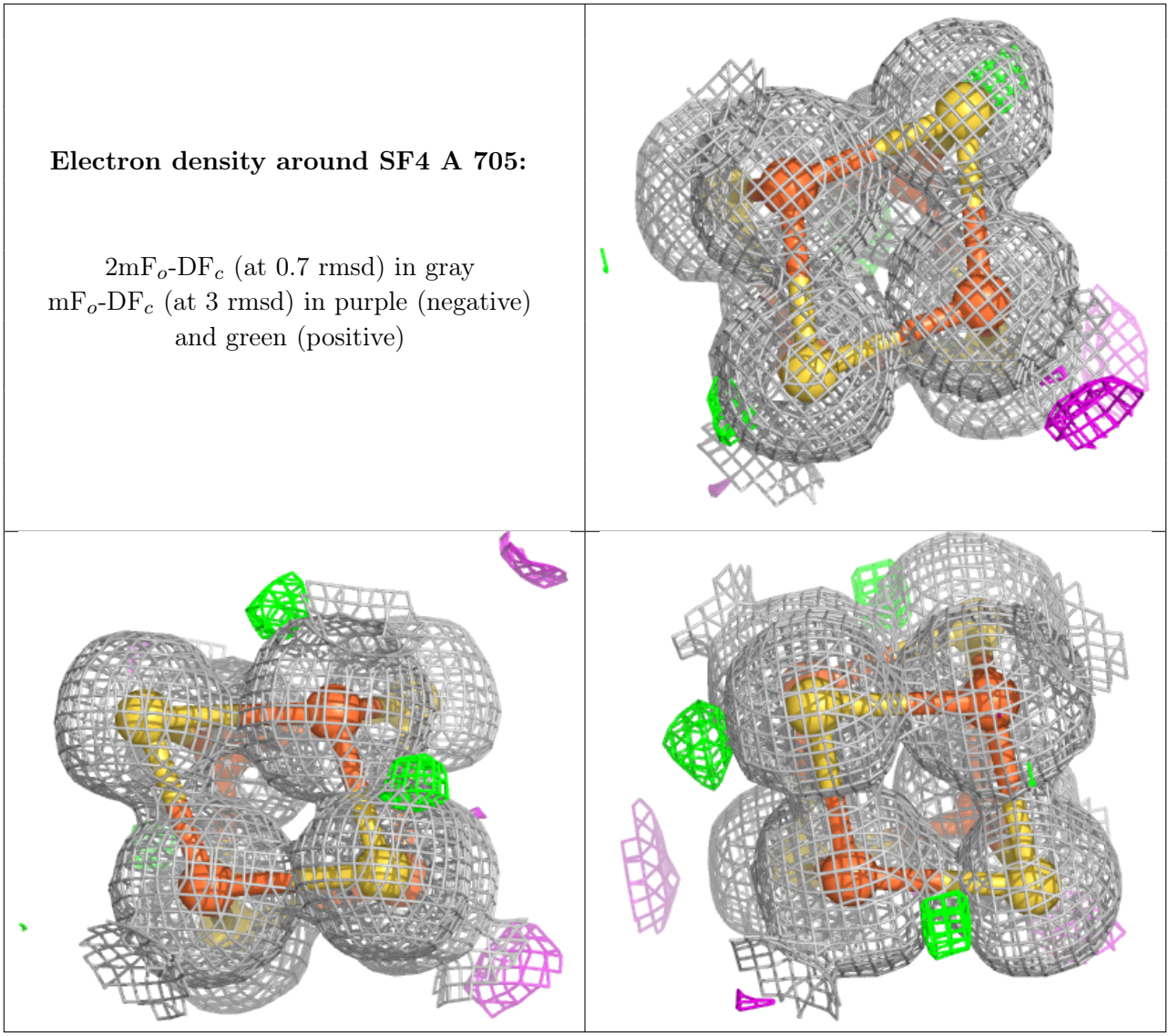






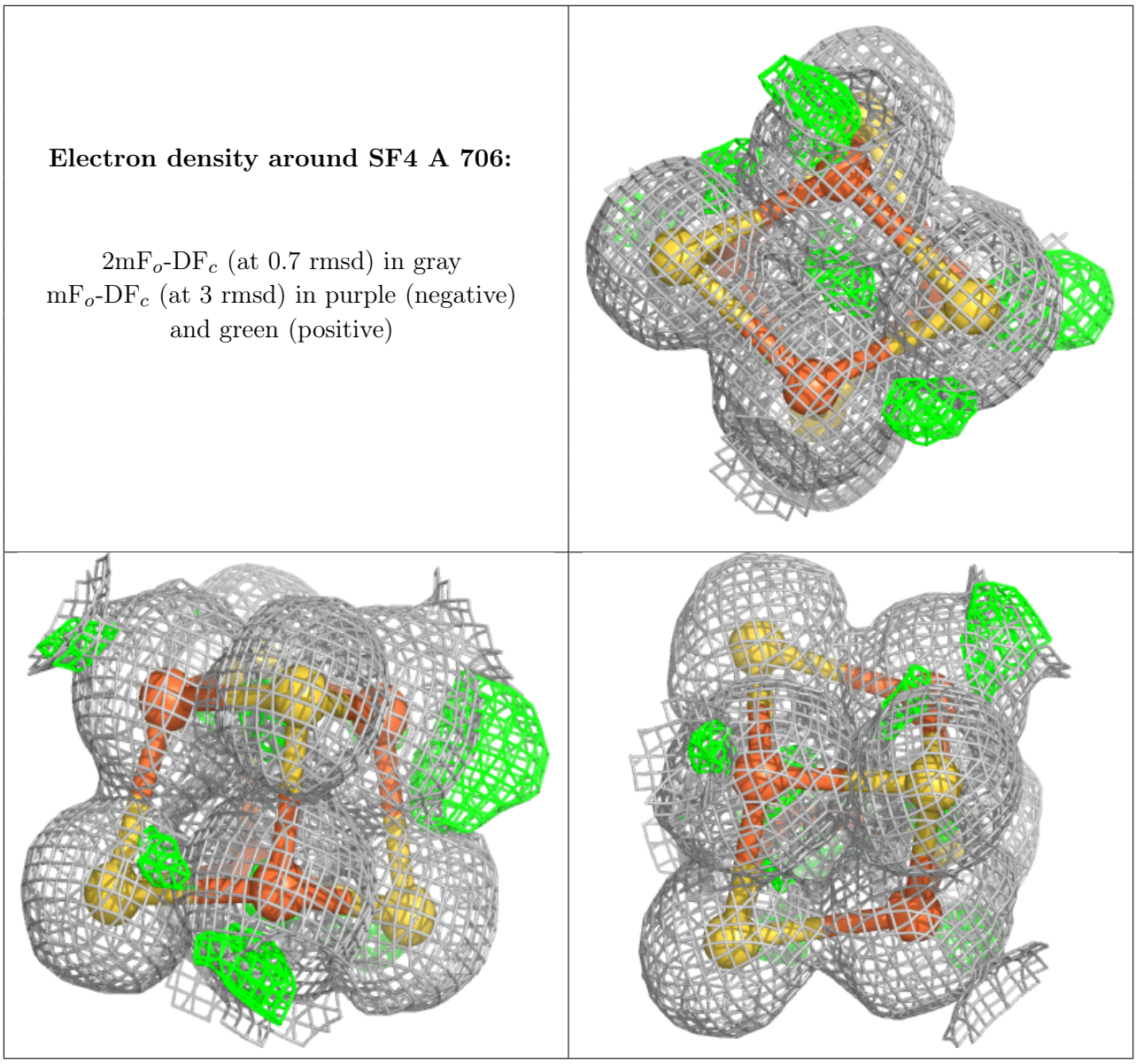
Electron density around SF4 A 705:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



Electron density around SF4 A 706:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



6.5 Other polymers

There are no such residues in this entry.