



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 7, 2026 – 02:38 AM UTC

PDB ID : 6KXN / pdb_00006kxn
Title : Crystal structure of W50A mutant of Chitinophilus shinanonensis chitinase ChiL (CsChiL) complexed with N,N'-diacetylchitobiose
Authors : Ueda, M.; Shimosaka, M.; Arai, R.
Deposited on : 2019-09-12
Resolution : 1.50 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	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
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

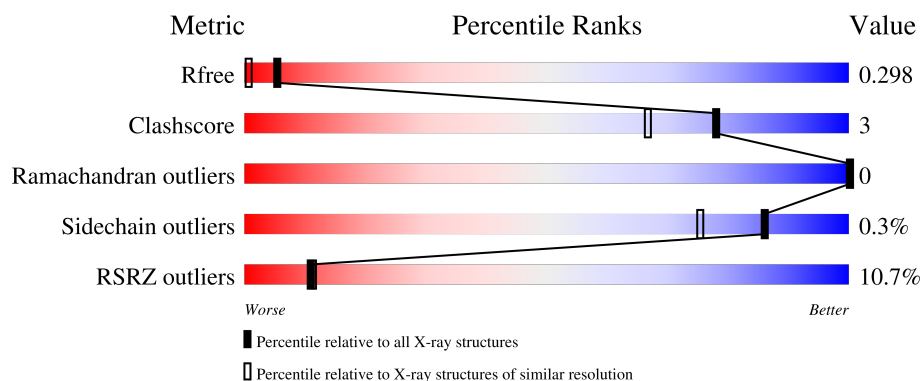
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.50 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	4037 (1.50-1.50)
Clashscore	190562	4235 (1.50-1.50)
Ramachandran outliers	187476	4153 (1.50-1.50)
Sidechain outliers	187428	4150 (1.50-1.50)
RSRZ outliers	180081	4039 (1.50-1.50)

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 $\leq 5\%$. 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	372	11% 95% • •
1	B	372	10% 92% 7% •
2	C	2	100%
2	D	2	50% 50%

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	GOL	B	502	-	-	X	-

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 6708 atoms, of which 0 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 Family 18 chitinase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	368	Total	C	N	O	S	0	2	0
			2907	1852	490	559	6			
1	B	367	Total	C	N	O	S	0	3	0
			2908	1855	489	558	6			

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	35	GLY	-	expression tag	UNP F8WSX2
A	36	GLY	-	expression tag	UNP F8WSX2
A	37	SER	-	expression tag	UNP F8WSX2
A	38	GLY	-	expression tag	UNP F8WSX2
A	39	GLY	-	expression tag	UNP F8WSX2
A	40	SER	-	expression tag	UNP F8WSX2
A	50	ALA	TRP	engineered mutation	UNP F8WSX2
B	35	GLY	-	expression tag	UNP F8WSX2
B	36	GLY	-	expression tag	UNP F8WSX2
B	37	SER	-	expression tag	UNP F8WSX2
B	38	GLY	-	expression tag	UNP F8WSX2
B	39	GLY	-	expression tag	UNP F8WSX2
B	40	SER	-	expression tag	UNP F8WSX2
B	50	ALA	TRP	engineered mutation	UNP F8WSX2

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



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	C	2	Total	C	N	O	0	0	0
			29	16	2	11			
2	D	2	Total	C	N	O	0	0	0
			29	16	2	11			

- Molecule 3 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	S	0	0
			5	4	1		
3	A	1	Total	O	S	0	0
			5	4	1		
3	A	1	Total	O	S	0	0
			5	4	1		
3	A	1	Total	O	S	0	0
			5	4	1		
3	A	1	Total	O	S	0	0
			5	4	1		
3	A	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		

- Molecule 4 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: C₄H₁₀O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	B	1	Total	C	O	0	0
			7	4	3		
4	B	1	Total	C	O	0	0
			7	4	3		

- Molecule 5 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	B	1	Total	C	O	0	0
			6	3	3		

- Molecule 6 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	B	1	Total	C	O	0	0
			4	2	2		

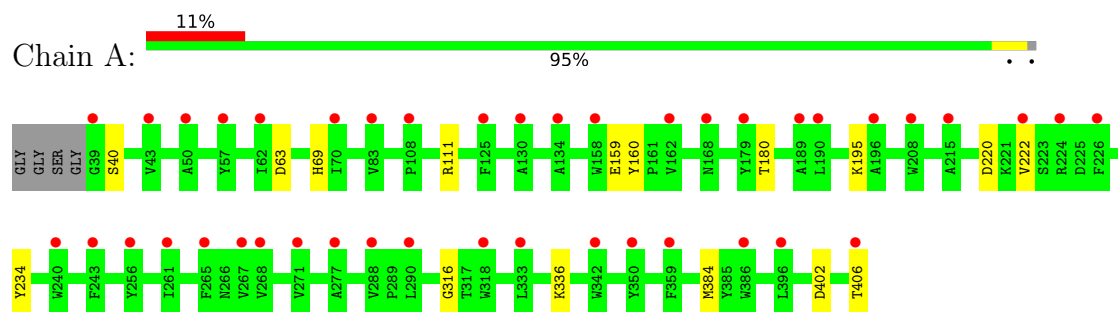
- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	381	Total	O	0	2
			383	383		
7	B	380	Total	O	0	3
			383	383		

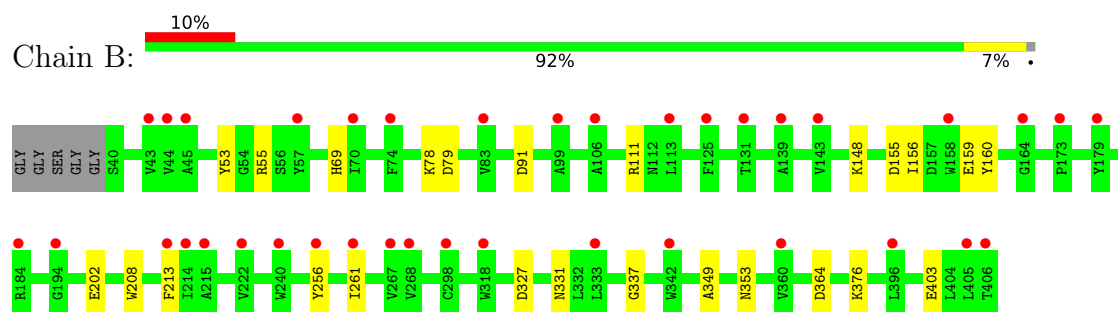
3 Residue-property plots [i](#)

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: Family 18 chitinase



- Molecule 1: Family 18 chitinase



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



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



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	69.41Å 81.23Å 130.26Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	31.02 – 1.50 31.02 – 1.50	Depositor EDS
% Data completeness (in resolution range)	98.5 (31.02-1.50) 98.9 (31.02-1.50)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.12 (at 1.50Å)	Xtriage
Refinement program	REFMAC 5.8.0253	Depositor
R, R_{free}	0.253 , 0.293 0.259 , 0.298	Depositor DCC
R_{free} test set	5885 reflections (4.95%)	wwPDB-VP
Wilson B-factor (Å ²)	17.2	Xtriage
Anisotropy	0.624	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 33.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	6708	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 5.06% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

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: SO4, EDO, NAG, GOL, PEG

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	1.03	0/2988	1.29	0/4045
1	B	1.05	1/2992 (0.0%)	1.27	0/4051
All	All	1.04	1/5980 (0.0%)	1.28	0/8096

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	53	TYR	N-CA	5.20	1.49	1.46

There are no bond angle outliers.

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	2907	0	2779	13	0
1	B	2908	0	2787	19	0
2	C	29	0	27	0	0
2	D	29	0	27	0	0
3	A	35	0	0	0	0
3	B	10	0	0	0	0
4	B	14	0	20	2	0
5	B	6	0	8	5	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	B	4	0	6	0	0
7	A	383	0	0	6	0
7	B	383	0	0	4	0
All	All	6708	0	5654	32	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 3.

All (32) 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:336:LYS:HD2	7:A:895:HOH:O	1.83	0.79
1:B:79:ASP:H	5:B:502:GOL:C3	2.00	0.75
1:A:316:GLY:O	7:A:655[B]:HOH:O	2.12	0.67
1:B:156:ILE:C	7:B:603:HOH:O	2.40	0.65
1:A:402:ASP:O	1:A:406:THR:HG22	1.97	0.64
1:B:79:ASP:H	5:B:502:GOL:H31	1.64	0.63
1:B:159:GLU:HA	1:B:160:TYR:CD1	2.37	0.58
1:B:78:LYS:HA	5:B:502:GOL:H32	1.86	0.58
1:B:148:LYS:HE3	4:B:501:PEG:H21	1.86	0.57
1:A:336:LYS:CD	7:A:895:HOH:O	2.47	0.56
1:B:79:ASP:H	5:B:502:GOL:H32	1.71	0.55
1:B:91:ASP:OD2	4:B:501:PEG:H11	2.08	0.53
1:A:180:THR:HA	1:A:222:VAL:HG12	1.92	0.51
1:A:336:LYS:HE3	7:A:640:HOH:O	2.11	0.50
1:A:336:LYS:HB3	7:A:854:HOH:O	2.13	0.49
1:A:159:GLU:HA	1:A:160:TYR:CD1	2.49	0.47
1:B:55:ARG:HG2	7:B:780:HOH:O	2.13	0.47
1:B:79:ASP:N	5:B:502:GOL:C3	2.74	0.47
1:A:63:ASP:OD1	1:A:63:ASP:C	2.59	0.45
1:B:202:GLU:CD	7:B:698:HOH:O	2.59	0.45
1:B:337:GLY:O	1:B:353:ASN:HA	2.15	0.45
1:A:69:HIS:HA	1:A:111:ARG:O	2.16	0.45
1:A:220:ASP:HB2	7:A:606:HOH:O	2.17	0.45
1:B:376:LYS:CE	1:B:403:GLU:O	2.66	0.44
1:A:234:TYR:OH	1:A:384:MET:HE1	2.17	0.44
1:B:155:ASP:CG	7:B:603:HOH:O	2.63	0.42
1:A:180:THR:HA	1:A:222:VAL:CG1	2.49	0.42
1:B:256:TYR:CE2	1:B:261:ILE:HG21	2.55	0.42
1:B:327:ASP:OD1	1:B:331:ASN:ND2	2.35	0.41
1:B:208:TRP:HB3	1:B:213:PHE:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:69:HIS:HA	1:B:111:ARG:O	2.21	0.40
1:B:349:ALA:HB3	1:B:364:ASP:HB2	2.03	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	368/372 (99%)	357 (97%)	11 (3%)	0	100	100
1	B	368/372 (99%)	357 (97%)	11 (3%)	0	100	100
All	All	736/744 (99%)	714 (97%)	22 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	296/295 (100%)	294 (99%)	2 (1%)	76	57
1	B	297/295 (101%)	297 (100%)	0	100	100
All	All	593/590 (100%)	591 (100%)	2 (0%)	86	75

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	40	SER
1	A	195	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	107	HIS
1	A	230	ASN
1	A	304	ASN
1	A	394	GLN
1	B	230	ASN
1	B	304	ASN
1	B	308	GLN
1	B	311	ASN

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 ⓘ

4 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	C	1	2	15,15,15	1.02	0	21,21,21	1.19	1 (4%)
2	NAG	C	2	2	14,14,15	1.03	1 (7%)	17,19,21	1.08	2 (11%)
2	NAG	D	1	2	15,15,15	1.37	3 (20%)	21,21,21	1.25	1 (4%)
2	NAG	D	2	2	14,14,15	0.81	0	17,19,21	0.82	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
2	NAG	C	1	2	-	2/6/26/26	0/1/1/1
2	NAG	C	2	2	-	0/6/23/26	0/1/1/1
2	NAG	D	1	2	-	1/6/26/26	0/1/1/1
2	NAG	D	2	2	-	0/6/23/26	0/1/1/1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	1	NAG	C1-C2	3.62	1.57	1.52
2	D	1	NAG	O1-C1	2.26	1.46	1.39
2	C	2	NAG	C1-C2	2.13	1.55	1.52
2	D	1	NAG	C2-N2	2.04	1.49	1.45

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	1	NAG	C1-O5-C5	-3.04	107.77	113.65
2	C	2	NAG	C1-C2-N2	-2.61	106.32	110.43
2	C	2	NAG	O5-C5-C6	-2.30	103.18	107.66
2	D	1	NAG	C2-N2-C7	-2.04	118.33	123.11

There are no chirality outliers.

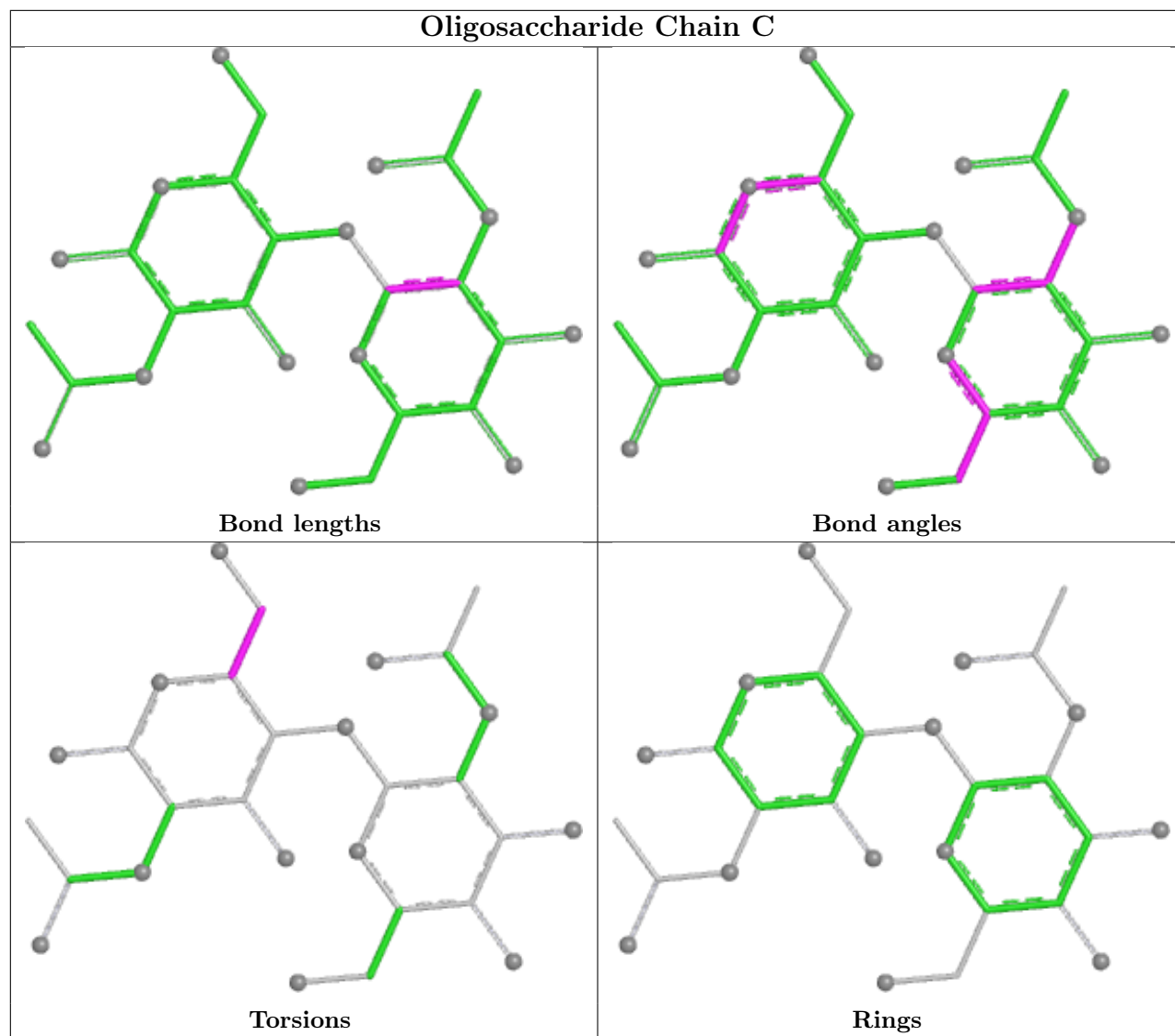
All (3) torsion outliers are listed below:

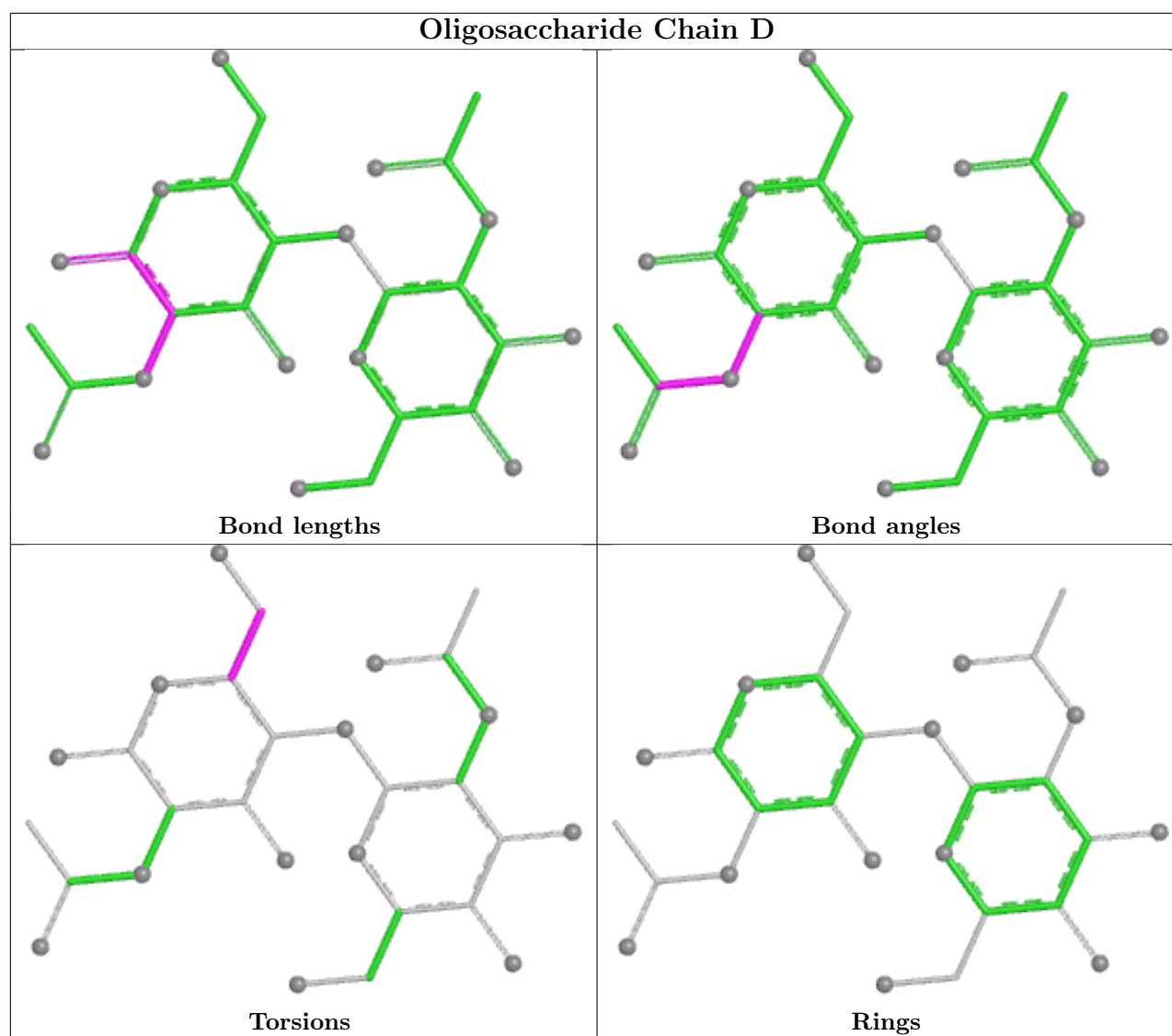
Mol	Chain	Res	Type	Atoms
2	C	1	NAG	O5-C5-C6-O6
2	C	1	NAG	C4-C5-C6-O6
2	D	1	NAG	C4-C5-C6-O6

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 oligosaccharide.





5.6 Ligand geometry [i](#)

13 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	$\# Z > 2$
3	SO4	A	504	-	4,4,4	0.30	0	6,6,6	0.08	0
3	SO4	A	505	-	4,4,4	0.32	0	6,6,6	0.13	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	SO4	A	507	-	4,4,4	0.40	0	6,6,6	0.08	0
3	SO4	A	501	-	4,4,4	0.31	0	6,6,6	0.11	0
3	SO4	A	503	-	4,4,4	0.36	0	6,6,6	0.10	0
3	SO4	B	505	-	4,4,4	0.32	0	6,6,6	0.14	0
3	SO4	B	506	-	4,4,4	0.35	0	6,6,6	0.04	0
4	PEG	B	503	-	6,6,6	0.25	0	5,5,5	0.34	0
3	SO4	A	506	-	4,4,4	0.35	0	6,6,6	0.07	0
4	PEG	B	501	-	6,6,6	0.19	0	5,5,5	0.20	0
3	SO4	A	502	-	4,4,4	0.34	0	6,6,6	0.13	0
6	EDO	B	504	-	3,3,3	0.22	0	2,2,2	0.34	0
5	GOL	B	502	-	5,5,5	0.16	0	5,5,5	0.59	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
4	PEG	B	501	-	-	3/4/4/4	-
6	EDO	B	504	-	-	1/1/1/1	-
4	PEG	B	503	-	-	2/4/4/4	-
5	GOL	B	502	-	-	3/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (9) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	503	PEG	C4-C3-O2-C2
4	B	501	PEG	O1-C1-C2-O2
4	B	501	PEG	O2-C3-C4-O4
4	B	503	PEG	O1-C1-C2-O2
5	B	502	GOL	O1-C1-C2-C3
5	B	502	GOL	O1-C1-C2-O2
4	B	501	PEG	C4-C3-O2-C2
6	B	504	EDO	O1-C1-C2-O2
5	B	502	GOL	C1-C2-C3-O3

There are no ring outliers.

2 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	501	PEG	2	0
5	B	502	GOL	5	0

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, 95th 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	368/372 (98%)	1.25	42 (11%)	10 10	11, 20, 27, 42	2 (0%)
1	B	367/372 (98%)	1.21	37 (10%)	12 13	10, 19, 27, 47	3 (0%)
All	All	735/744 (98%)	1.23	79 (10%)	11 11	10, 20, 27, 47	5 (0%)

All (79) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	406	THR	5.4
1	A	224	ARG	3.6
1	B	215	ALA	3.3
1	B	214	ILE	3.2
1	A	158	TRP	3.2
1	A	406	THR	3.1
1	B	240	TRP	2.9
1	B	83	VAL	2.9
1	A	168	ASN	2.9
1	A	39	GLY	2.9
1	A	189	ALA	2.8
1	A	265	PHE	2.8
1	A	125	PHE	2.8
1	B	213	PHE	2.7
1	A	271	VAL	2.6
1	B	70	ILE	2.6
1	B	106	ALA	2.6
1	A	350	TYR	2.6
1	B	268	VAL	2.6
1	A	43	VAL	2.6
1	A	240	TRP	2.5
1	A	290	LEU	2.5
1	A	108	PRO	2.5
1	B	45	ALA	2.5

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Mol	Chain	Res	Type	RSRZ
1	A	162	VAL	2.5
1	A	261	ILE	2.4
1	A	318	TRP	2.4
1	B	143	VAL	2.4
1	B	396	LEU	2.4
1	B	57	TYR	2.4
1	B	179	TYR	2.4
1	A	83	VAL	2.4
1	A	268	VAL	2.4
1	B	44	VAL	2.4
1	A	70	ILE	2.3
1	A	267	VAL	2.3
1	A	333	LEU	2.3
1	A	50	ALA	2.3
1	A	222	VAL	2.3
1	B	267	VAL	2.3
1	A	62	ILE	2.3
1	B	405	LEU	2.3
1	A	57	TYR	2.3
1	A	196	ALA	2.2
1	B	164	GLY	2.2
1	A	386	TRP	2.2
1	A	130	ALA	2.2
1	B	131	THR	2.2
1	B	43	VAL	2.2
1	B	222	VAL	2.2
1	B	333	LEU	2.2
1	A	215	ALA	2.2
1	B	342	TRP	2.2
1	B	173	PRO	2.2
1	B	99	ALA	2.1
1	B	194	GLY	2.1
1	B	261	ILE	2.1
1	A	179	TYR	2.1
1	A	208	TRP	2.1
1	A	243	PHE	2.1
1	A	359	PHE	2.1
1	B	139	ALA	2.1
1	B	298	CYS	2.1
1	B	184	ARG	2.1
1	A	226	PHE	2.1
1	B	125	PHE	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	190	LEU	2.1
1	A	396	LEU	2.1
1	A	256	TYR	2.1
1	B	74	PHE	2.0
1	A	134	ALA	2.0
1	B	256	TYR	2.0
1	A	342	TRP	2.0
1	B	158	TRP	2.0
1	B	318	TRP	2.0
1	A	277	ALA	2.0
1	A	288	VAL	2.0
1	B	360	VAL	2.0
1	B	113[A]	LEU	2.0

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 ⓘ

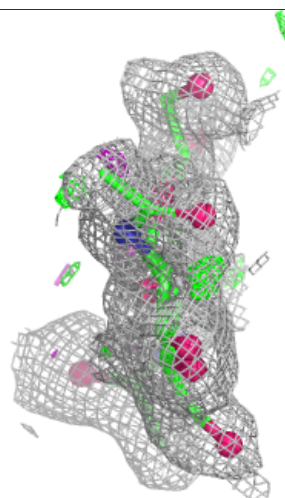
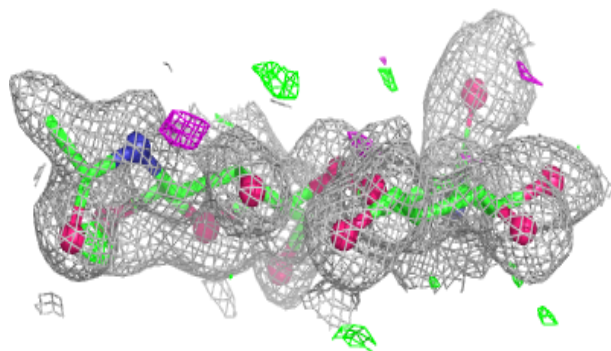
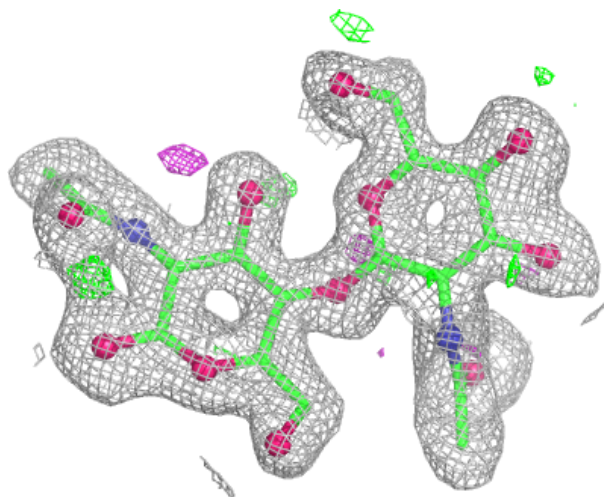
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

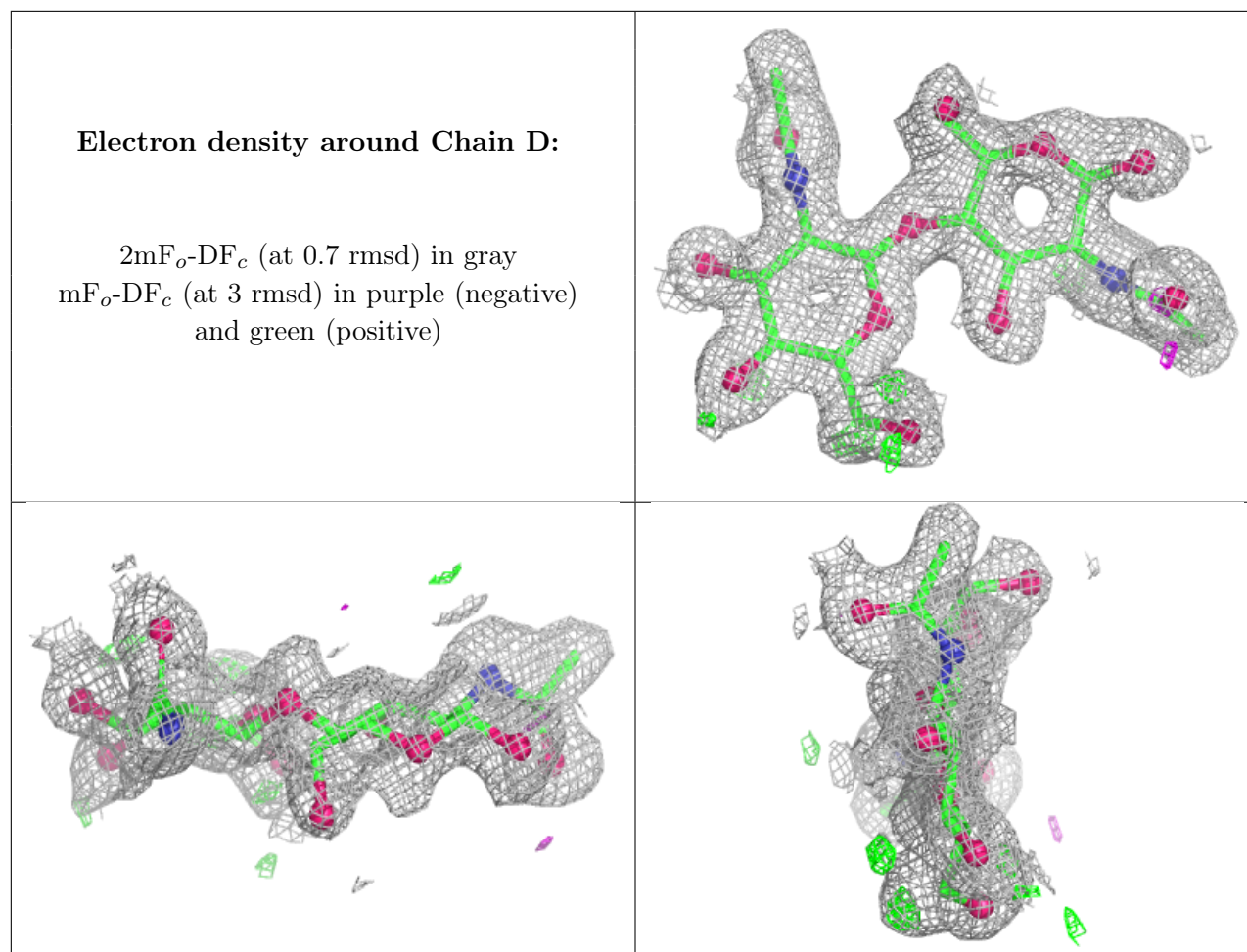
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	NAG	D	2	14/15	0.85	0.12	20,23,26,27	0
2	NAG	C	1	15/15	0.87	0.11	18,22,24,30	0
2	NAG	D	1	15/15	0.88	0.11	18,21,26,28	0
2	NAG	C	2	14/15	0.90	0.10	16,19,22,23	0

The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around Chain C:

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





6.4 Ligands [i](#)

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, 95th 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($\text{\AA}^2$)	Q<0.9
5	GOL	B	502	6/6	0.63	0.20	35,35,38,39	0
6	EDO	B	504	4/4	0.67	0.21	27,28,29,31	0
4	PEG	B	501	7/7	0.69	0.21	31,32,35,35	0
3	SO4	A	506	5/5	0.72	0.21	32,33,33,34	5
3	SO4	A	501	5/5	0.77	0.12	37,37,39,40	5
3	SO4	B	505	5/5	0.78	0.14	27,29,30,31	5
3	SO4	A	507	5/5	0.79	0.17	22,24,26,26	5
4	PEG	B	503	7/7	0.82	0.15	25,27,29,30	0
3	SO4	A	504	5/5	0.83	0.11	35,36,37,38	5
3	SO4	B	506	5/5	0.84	0.11	46,46,49,49	0
3	SO4	A	502	5/5	0.87	0.11	35,36,39,39	5

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	SO4	A	505	5/5	0.88	0.12	29,30,31,33	5
3	SO4	A	503	5/5	0.90	0.12	36,39,39,41	5

6.5 Other polymers [i](#)

There are no such residues in this entry.