



# Full wwPDB X-ray Structure Validation Report ⓘ

May 19, 2026 – 04:09 pm BST

PDB ID : 9SXB / pdb\_00009sxb  
Title : Thermococcus sibiricus cyclic 2,3-diphosphoglycerate synthetase  
Authors : De Rose, S.A.; Isupov, M.N.; Patti, S.; Littlechild, J.A.  
Deposited on : 2025-10-09  
Resolution : 2.28 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](mailto: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>.

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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  
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

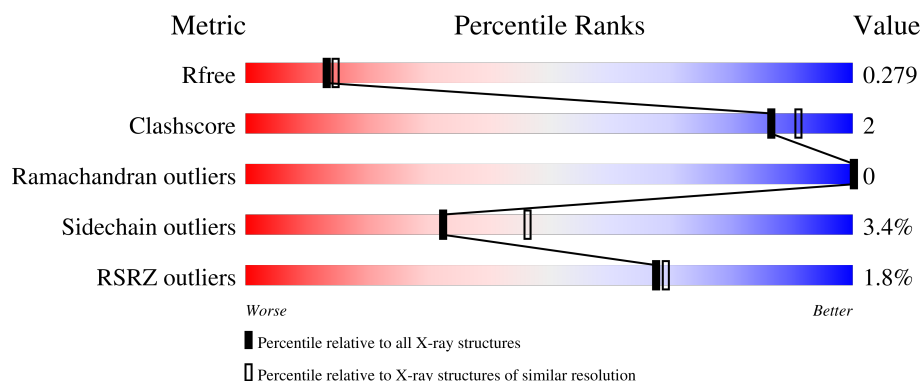
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.28 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	9078 (2.30-2.26)
Clashscore	190562	9802 (2.30-2.26)
Ramachandran outliers	187476	9690 (2.30-2.26)
Sidechain outliers	187428	9691 (2.30-2.26)
RSRZ outliers	180081	9085 (2.30-2.26)

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  $\geq 3$ , 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	436	
1	B	436	

## 2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 6895 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 Cyclic 2,3-diphosphoglycerate synthetase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	436	Total	C	N	O	S	0	0	0
			3397	2178	573	635	11			
1	B	433	Total	C	N	O	S	0	0	0
			3369	2162	566	630	11			

There are 4 discrepancies between the modelled and reference sequences:

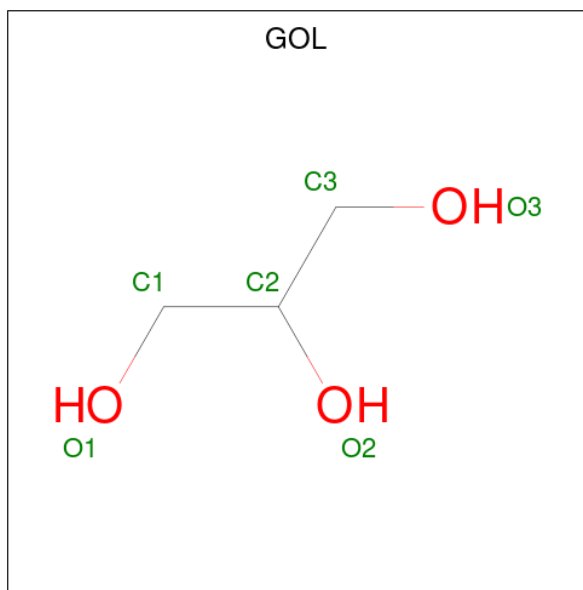
Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	THR	-	expression tag	UNP C6A0T3
A	0	ARG	-	expression tag	UNP C6A0T3
B	-1	THR	-	expression tag	UNP C6A0T3
B	0	ARG	-	expression tag	UNP C6A0T3

- Molecule 2 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>).



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

- Molecule 3 is GLYCEROL (CCD ID: GOL) (formula:  $C_3H_8O_3$ ).



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

- Molecule 4 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula:  $C_4H_{10}O_3$ ).



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

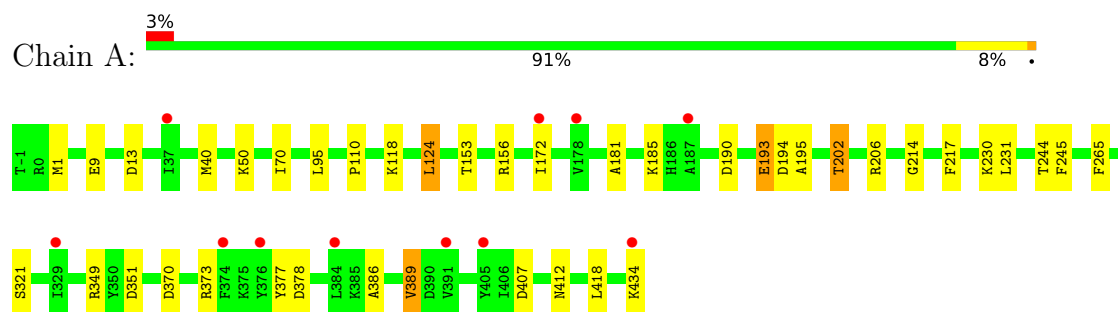
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	51	Total	O	0	0
			51	51		
5	B	17	Total	O	0	0
			17	17		

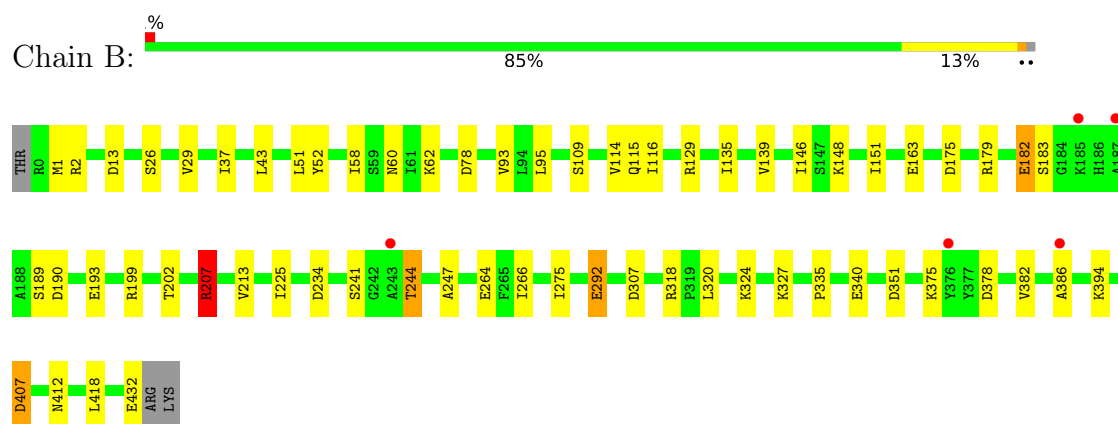
### 3 Residue-property plots [i](#)

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: Cyclic 2,3-diphosphoglycerate synthetase



- Molecule 1: Cyclic 2,3-diphosphoglycerate synthetase



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	162.46Å 80.56Å 82.74Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	73.80 – 2.28 73.80 – 2.28	Depositor EDS
% Data completeness (in resolution range)	100.0 (73.80-2.28) 100.0 (73.80-2.28)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.11 (at 2.27Å)	Xtriage
Refinement program	REFMAC 5.8.0430 (refmacat 0.4.88)	Depositor
R, $R_{free}$	0.219 , 0.278 0.219 , 0.279	Depositor DCC
$R_{free}$ test set	2364 reflections (4.70%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	70.6	Xtriage
Anisotropy	0.448	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.34 , 52.8	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.51$ , $\langle L^2 \rangle = 0.35$	Xtriage
Estimated twinning fraction	0.000 for -h,l,k	Xtriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	6895	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	83.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.42% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: PEG, EDO, GOL

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	0.58	0/3452	1.31	15/4646 (0.3%)
1	B	0.57	0/3424	1.30	18/4611 (0.4%)
All	All	0.57	0/6876	1.31	33/9257 (0.4%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	B	0	2
All	All	0	4

There are no bond length outliers.

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	182	GLU	CB-CG-CD	7.86	125.97	112.60
1	B	199	ARG	CB-CA-C	7.30	121.16	111.82
1	A	194	ASP	CB-CA-C	7.28	122.31	110.88
1	A	378	ASP	CA-CB-CG	7.14	119.74	112.60
1	A	265	PHE	CA-CB-CG	6.79	120.59	113.80
1	B	52	TYR	CB-CA-C	6.77	120.90	109.80
1	A	124	LEU	N-CA-CB	-6.68	100.07	111.69
1	A	153	THR	CA-CB-OG1	-6.62	99.66	109.60
1	B	2	ARG	N-CA-CB	-6.42	100.11	111.08
1	B	264	GLU	CB-CG-CD	6.11	122.99	112.60
1	B	78	ASP	CA-CB-CG	6.02	118.62	112.60
1	A	217	PHE	CB-CA-C	5.68	120.24	110.86

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	407	ASP	CA-CB-CG	5.66	118.26	112.60
1	A	230	LYS	CB-CA-C	5.57	120.90	110.70
1	A	193	GLU	CB-CA-C	-5.53	101.97	110.81
1	B	13	ASP	CB-CA-C	5.53	119.55	110.88
1	B	148	LYS	CB-CA-C	5.47	116.34	110.65
1	B	292	GLU	N-CA-CB	5.41	118.16	110.16
1	B	207	ARG	CB-CA-C	5.34	117.81	110.34
1	B	93	VAL	N-CA-CB	5.33	116.78	110.55
1	B	163	GLU	N-CA-CB	-5.25	102.46	110.65
1	B	175	ASP	CA-CB-CG	5.22	117.82	112.60
1	A	13	ASP	CA-CB-CG	5.19	117.79	112.60
1	B	340	GLU	CB-CA-C	5.14	118.95	110.88
1	A	50	LYS	CB-CG-CD	5.11	123.05	111.30
1	B	190	ASP	CA-CB-CG	5.10	117.70	112.60
1	A	351	ASP	CA-CB-CG	5.09	117.69	112.60
1	B	351	ASP	CA-CB-CG	5.09	117.69	112.60
1	A	407	ASP	CA-CB-CG	5.09	117.69	112.60
1	A	377	TYR	CA-CB-CG	5.07	123.03	113.90
1	A	190	ASP	CA-CB-CG	5.07	117.67	112.60
1	A	185	LYS	CB-CA-C	5.05	120.46	110.42
1	B	327	LYS	CB-CA-C	5.02	118.03	109.80

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	156	ARG	Sidechain
1	A	349	ARG	Sidechain
1	B	179	ARG	Sidechain
1	B	318	ARG	Sidechain

## 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	3397	0	3530	12	0
1	B	3369	0	3497	17	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	A	32	0	48	0	0
2	B	16	0	24	0	0
3	A	6	0	8	0	0
4	B	7	0	10	0	0
5	A	51	0	0	0	0
5	B	17	0	0	0	0
All	All	6895	0	7117	29	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 2.

All (29) 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:207:ARG:HH21	1:B:241:SER:HB2	1.65	0.62
1:A:181:ALA:HB2	1:A:389:VAL:HG22	1.82	0.61
1:B:412:ASN:HD21	1:B:418:LEU:H	1.51	0.57
1:B:116:ILE:HD12	1:B:225:ILE:HD12	1.86	0.56
1:A:95:LEU:HD23	1:A:110:PRO:HD3	1.87	0.56
1:A:412:ASN:HD21	1:A:418:LEU:H	1.53	0.56
1:B:151:ILE:HB	1:B:202:THR:HG22	1.89	0.54
1:A:40:MET:HA	1:A:40:MET:HE2	1.91	0.52
1:A:193:GLU:HG2	1:A:386:ALA:HB2	1.92	0.51
1:B:135:ILE:O	1:B:139:VAL:HG23	2.11	0.50
1:B:241:SER:O	1:B:244:THR:HB	2.11	0.50
1:A:118:LYS:NZ	1:A:231:LEU:O	2.45	0.49
1:B:43:LEU:HD23	1:B:51:LEU:HD21	1.94	0.49
1:B:129:ARG:HH11	1:B:335:PRO:HD3	1.78	0.49
1:B:207:ARG:HH21	1:B:241:SER:CB	2.24	0.49
1:A:195:ALA:HA	1:A:202:THR:HG21	1.95	0.48
1:A:412:ASN:ND2	1:A:418:LEU:H	2.11	0.47
1:B:95:LEU:HD13	1:B:213:VAL:HG21	1.97	0.46
1:B:1:MET:CG	1:B:26:SER:HB3	2.47	0.45
1:B:266:ILE:HG23	1:B:275:ILE:HD11	1.99	0.45
1:B:29:VAL:HG13	1:B:60:ASN:HB3	2.00	0.44
1:A:1:MET:O	1:A:70:ILE:HA	2.18	0.43
1:A:214:GLY:O	1:A:244:THR:HA	2.19	0.43
1:B:193:GLU:OE1	1:B:386:ALA:HB2	2.19	0.43
1:B:58:ILE:HG22	1:B:62:LYS:HD2	2.02	0.42
1:A:124:LEU:HD13	1:A:245:PHE:CD1	2.54	0.42
1:B:114:VAL:HG22	1:B:247:ALA:O	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:320:LEU:HD21	1:B:407:ASP:HB2	2.03	0.41
1:A:370:ASP:OD1	1:A:373:ARG:NH1	2.53	0.41

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	434/436 (100%)	410 (94%)	24 (6%)	0	100	100
1	B	431/436 (99%)	408 (95%)	23 (5%)	0	100	100
All	All	865/872 (99%)	818 (95%)	47 (5%)	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	365/365 (100%)	358 (98%)	7 (2%)	50	66
1	B	362/365 (99%)	344 (95%)	18 (5%)	22	30
All	All	727/730 (100%)	702 (97%)	25 (3%)	32	46

All (25) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	9	GLU
1	A	172	ILE
1	A	202	THR
1	A	206	ARG
1	A	321	SER
1	A	389	VAL
1	A	434	LYS
1	B	37	ILE
1	B	109	SER
1	B	115	GLN
1	B	146	ILE
1	B	182	GLU
1	B	183	SER
1	B	189	SER
1	B	207	ARG
1	B	234	ASP
1	B	244	THR
1	B	292	GLU
1	B	307	ASP
1	B	324	LYS
1	B	375	LYS
1	B	378	ASP
1	B	382	VAL
1	B	394	LYS
1	B	432	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	68	ASN
1	A	311	HIS
1	A	360	ASN
1	A	412	ASN
1	B	115	GLN
1	B	298	GLN
1	B	360	ASN

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

14 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	$\# Z  > 2$
2	EDO	A	508	-	3,3,3	0.21	0	2,2,2	0.41	0
3	GOL	A	502	-	5,5,5	0.21	0	5,5,5	0.53	0
2	EDO	A	503	-	3,3,3	0.32	0	2,2,2	0.38	0
2	EDO	A	505	-	3,3,3	0.12	0	2,2,2	0.37	0
2	EDO	A	501	-	3,3,3	0.10	0	2,2,2	0.21	0
2	EDO	B	501	-	3,3,3	0.13	0	2,2,2	0.07	0
2	EDO	A	507	-	3,3,3	0.14	0	2,2,2	0.29	0
2	EDO	B	502	-	3,3,3	0.07	0	2,2,2	0.09	0
2	EDO	A	509	-	3,3,3	0.07	0	2,2,2	0.50	0
2	EDO	A	504	-	3,3,3	0.12	0	2,2,2	0.05	0
2	EDO	B	505	-	3,3,3	0.12	0	2,2,2	0.37	0
4	PEG	B	503	-	6,6,6	0.21	0	5,5,5	0.10	0
2	EDO	A	506	-	3,3,3	0.10	0	2,2,2	0.27	0
2	EDO	B	504	-	3,3,3	0.03	0	2,2,2	0.24	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	EDO	A	508	-	-	1/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	GOL	A	502	-	-	0/4/4/4	-
2	EDO	A	503	-	-	0/1/1/1	-
2	EDO	A	505	-	-	1/1/1/1	-
2	EDO	A	501	-	-	1/1/1/1	-
2	EDO	B	501	-	-	0/1/1/1	-
2	EDO	A	507	-	-	1/1/1/1	-
2	EDO	B	502	-	-	0/1/1/1	-
2	EDO	A	509	-	-	0/1/1/1	-
2	EDO	A	504	-	-	1/1/1/1	-
2	EDO	B	505	-	-	1/1/1/1	-
4	PEG	B	503	-	-	1/4/4/4	-
2	EDO	A	506	-	-	1/1/1/1	-
2	EDO	B	504	-	-	0/1/1/1	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	507	EDO	O1-C1-C2-O2
2	A	508	EDO	O1-C1-C2-O2
2	A	505	EDO	O1-C1-C2-O2
2	B	505	EDO	O1-C1-C2-O2
2	A	504	EDO	O1-C1-C2-O2
2	A	501	EDO	O1-C1-C2-O2
2	A	506	EDO	O1-C1-C2-O2
4	B	503	PEG	O2-C3-C4-O4

There are no ring outliers.

No monomer is involved in short contacts.

## 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 [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	436/436 (100%)	0.14	11 (2%) 58 60	58, 73, 117, 156	0
1	B	433/436 (99%)	0.22	5 (1%) 76 78	61, 82, 114, 184	0
All	All	869/872 (99%)	0.18	16 (1%) 67 69	58, 79, 116, 184	0

All (16) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	187	ALA	3.1
1	B	185	LYS	3.1
1	A	374	PHE	2.9
1	B	187	ALA	2.8
1	A	376	TYR	2.7
1	B	376	TYR	2.6
1	A	405	TYR	2.5
1	A	37	ILE	2.3
1	A	172	ILE	2.3
1	A	434	LYS	2.2
1	B	386	ALA	2.2
1	A	178	VAL	2.2
1	A	384	LEU	2.2
1	A	391	VAL	2.1
1	B	243	ALA	2.1
1	A	329	ILE	2.1

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

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

### 6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

### 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
2	EDO	A	507	4/4	0.76	0.14	85,86,91,93	0
2	EDO	A	505	4/4	0.77	0.12	76,82,83,83	0
2	EDO	B	502	4/4	0.77	0.18	102,102,107,109	0
2	EDO	A	501	4/4	0.80	0.24	69,73,75,85	0
2	EDO	A	508	4/4	0.81	0.18	87,88,91,94	0
2	EDO	A	503	4/4	0.81	0.12	65,79,82,88	0
2	EDO	B	505	4/4	0.81	0.17	82,82,85,90	0
2	EDO	B	504	4/4	0.82	0.19	104,112,112,113	0
2	EDO	A	509	4/4	0.84	0.14	73,75,78,85	0
2	EDO	A	506	4/4	0.84	0.15	95,96,97,104	0
3	GOL	A	502	6/6	0.87	0.14	91,97,102,103	0
4	PEG	B	503	7/7	0.88	0.14	94,105,114,119	0
2	EDO	A	504	4/4	0.89	0.12	84,92,102,104	0
2	EDO	B	501	4/4	0.92	0.16	84,85,86,90	0

### 6.5 Other polymers [i](#)

There are no such residues in this entry.