Full wwPDB X-ray Structure Validation Report ⓘ

Sep 9, 2024 – 12:17 PM EDT

PDB ID	:	8SZN
Title	:	Crystal structure of Neisseria meningitidis ClpP protease in complex with phosphine oxide compound ACP6-12
Authors	:	Mabanglo, M.F.; Houry, W.A.
Deposited on	:	2023-05-30
Resolution	:	2.33 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:

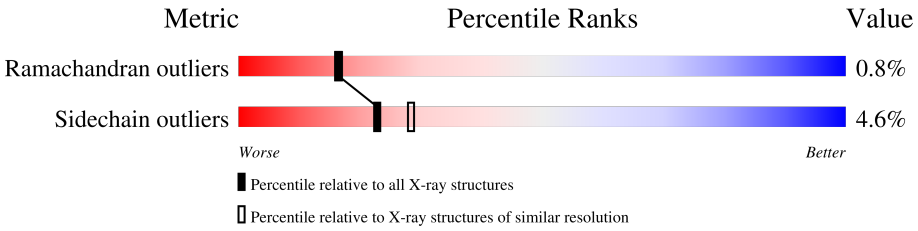
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	FAILED
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.38.3

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 2.33 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))
Ramachandran outliers	177936	2912 (2.36-2.32)
Sidechain outliers	177891	2912 (2.36-2.32)

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%

Note EDS failed to run properly.

Mol	Chain	Length	Quality of chain
1	A	204	89% · 8%
1	B	204	86% 5% 9%
1	C	204	88% · 9%
1	D	204	81% · 15%
1	E	204	78% 7% 14%
1	F	204	83% · 15%
1	G	204	84% 5% 11%
1	H	204	82% 6% 11%
1	I	204	86% 5% 9%

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Mol	Chain	Length	Quality of chain
1	J	204	
1	K	204	
1	L	204	
1	M	204	
1	N	204	
1	V	204	
1	W	204	
1	X	204	
1	Y	204	
1	Z	204	
1	a	204	
1	b	204	

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 31127 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 ATP-dependent Clp protease proteolytic subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	V	193	Total	C	N	O	S	0	0	0
			1504	947	259	290	8			
1	W	190	Total	C	N	O	S	0	0	0
			1478	927	256	287	8			
1	X	194	Total	C	N	O	S	0	0	0
			1508	949	260	291	8			
1	Y	181	Total	C	N	O	S	0	0	0
			1420	893	246	273	8			
1	Z	176	Total	C	N	O	S	0	0	0
			1373	864	235	266	8			
1	a	193	Total	C	N	O	S	0	0	0
			1504	947	259	290	8			
1	b	191	Total	C	N	O	S	0	0	0
			1490	938	257	287	8			
1	A	188	Total	C	N	O	S	0	0	0
			1475	930	254	283	8			
1	B	186	Total	C	N	O	S	0	0	0
			1448	915	248	277	8			
1	C	185	Total	C	N	O	S	0	0	0
			1441	911	244	278	8			
1	D	174	Total	C	N	O	S	0	0	0
			1363	859	233	263	8			
1	E	175	Total	C	N	O	S	0	0	0
			1367	861	234	264	8			
1	F	174	Total	C	N	O	S	0	0	0
			1362	858	233	263	8			
1	G	182	Total	C	N	O	S	0	0	0
			1414	892	241	273	8			
1	H	181	Total	C	N	O	S	0	0	0
			1417	899	240	270	8			
1	I	185	Total	C	N	O	S	0	0	0
			1440	911	244	277	8			

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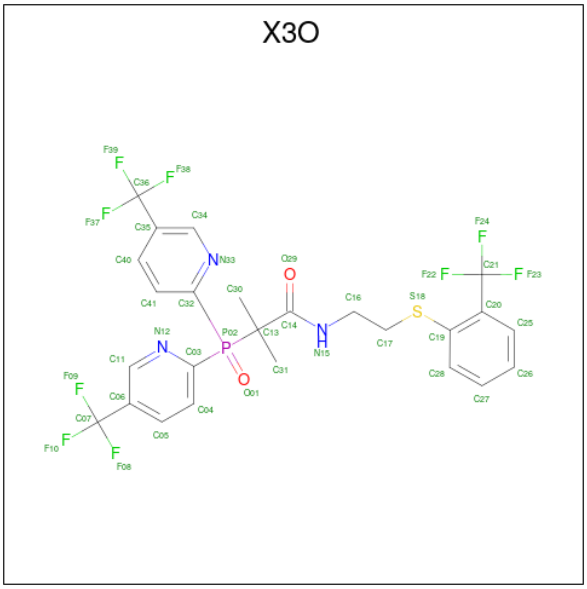
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	J	187	Total	C	N	O	S	0	0	0
			1457	922	247	280	8			
1	K	181	Total	C	N	O	S	0	0	0
			1418	899	240	271	8			
1	L	183	Total	C	N	O	S	0	0	0
			1429	905	240	276	8			
1	M	186	Total	C	N	O	S	0	0	0
			1456	920	249	279	8			
1	N	183	Total	C	N	O	S	0	0	0
			1430	906	242	274	8			

- Molecule 2 is 2-{bis[5-(trifluoromethyl)pyridin-2-yl]phosphoryl}-2-methyl-N-(2-{[2-(trifluoromethyl)phenyl]sulfanyl}ethyl)propanamide (three-letter code: X3O) (formula: $C_{25}H_{21}F_9N_3O_2PS$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms							ZeroOcc	AltConf
2	V	1	Total	C	F	N	O	P	S	0	0
			41	25	9	3	2	1	1		
2	W	1	Total	C	F	N	O	P	S	0	0
			41	25	9	3	2	1	1		
2	X	1	Total	C	F	N	O	P	S	0	0
			41	25	9	3	2	1	1		
2	Z	1	Total	C	F	N	O	P	S	0	0
			41	25	9	3	2	1	1		
2	a	1	Total	C	F	N	O	P	S	0	0
			41	25	9	3	2	1	1		

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Mol	Chain	Residues	Atoms							ZeroOcc	AltConf
2	b	1	Total	C	F	N	O	P	S	0	0
			41	25	9	3	2	1	1		
2	H	1	Total	C	F	N	O	P	S	0	0
			41	25	9	3	2	1	1		
2	J	1	Total	C	F	N	O	P	S	0	0
			41	25	9	3	2	1	1		
2	L	1	Total	C	F	N	O	P	S	0	0
			41	25	9	3	2	1	1		
2	M	1	Total	C	F	N	O	P	S	0	0
			41	25	9	3	2	1	1		
2	N	1	Total	C	F	N	O	P	S	0	0
			41	25	9	3	2	1	1		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	V	41	Total	O	0	0
			41	41		
3	W	19	Total	O	0	0
			19	19		
3	X	35	Total	O	0	0
			35	35		
3	Y	25	Total	O	0	0
			25	25		
3	Z	26	Total	O	0	0
			26	26		
3	a	32	Total	O	0	0
			32	32		
3	b	38	Total	O	0	0
			38	38		
3	A	44	Total	O	0	0
			44	44		
3	B	35	Total	O	0	0
			35	35		
3	C	16	Total	O	0	0
			16	16		
3	D	19	Total	O	0	0
			19	19		
3	E	14	Total	O	0	0
			14	14		
3	F	20	Total	O	0	0
			20	20		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	G	30	Total O 30 30	0	0
3	H	14	Total O 14 14	0	0
3	I	9	Total O 9 9	0	0
3	J	10	Total O 10 10	0	0
3	K	13	Total O 13 13	0	0
3	L	7	Total O 7 7	0	0
3	M	14	Total O 14 14	0	0
3	N	21	Total O 21 21	0	0

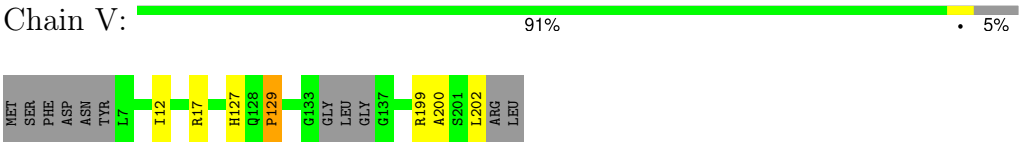
3 Residue-property plots (i)

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. 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. 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.

Note EDS failed to run properly.

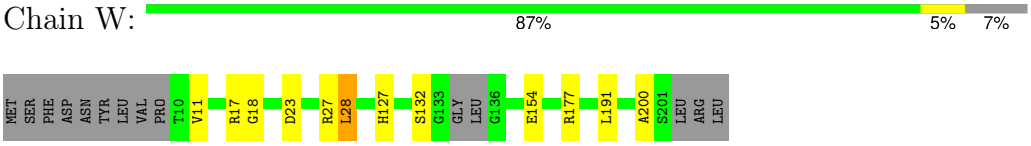
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain V:



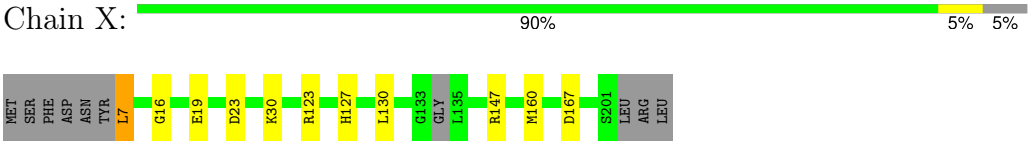
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain W:



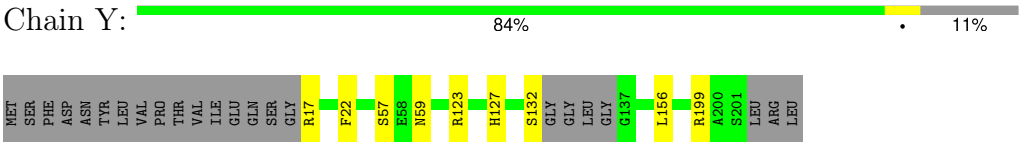
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain X:



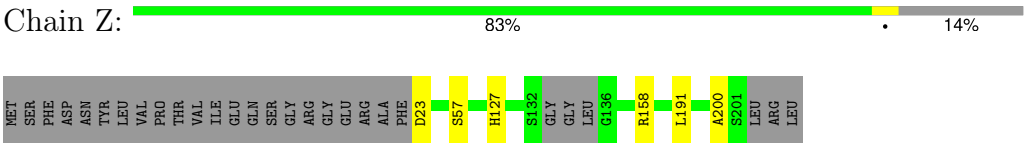
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain Y:



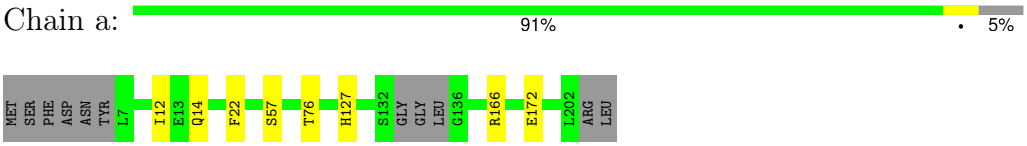
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain Z:



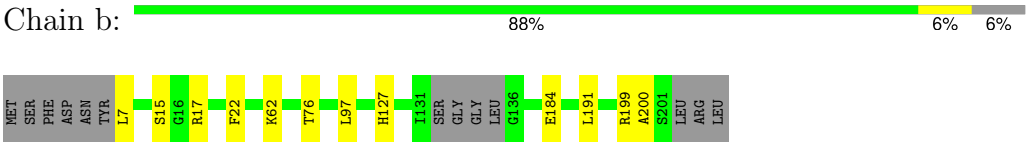
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain a:



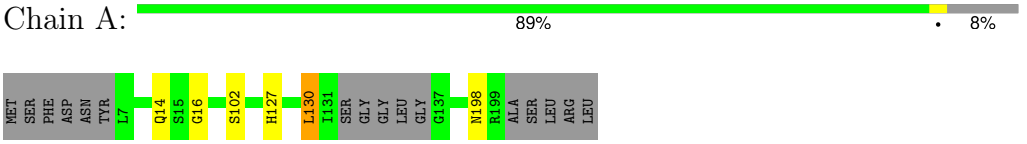
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain b:



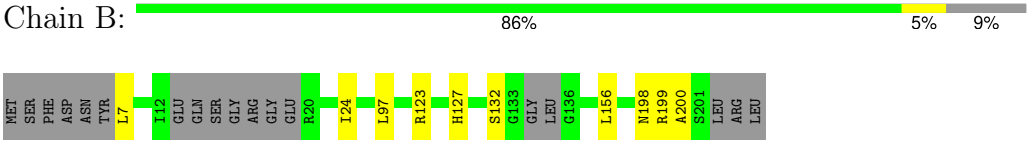
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain A:



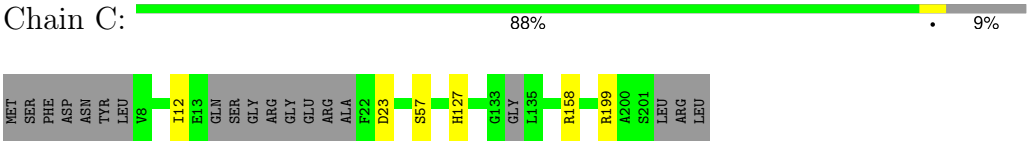
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain B:



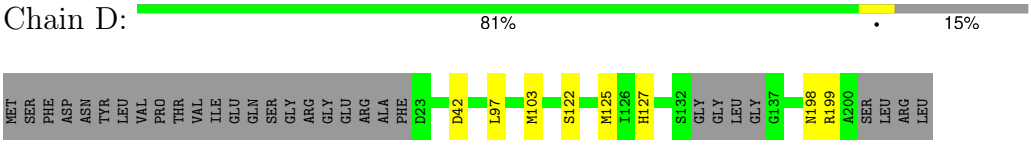
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain C:



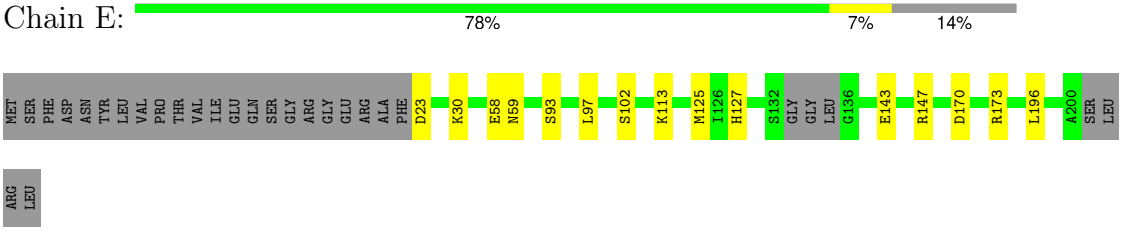
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain D:



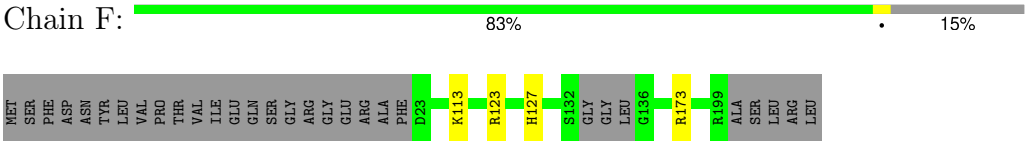
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain E:



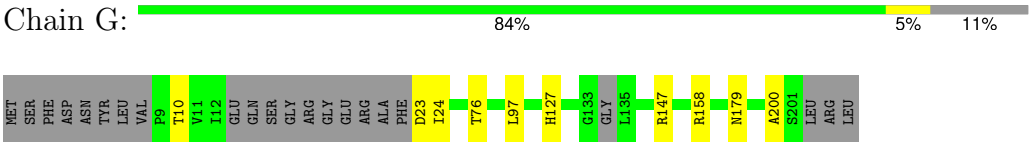
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain F:



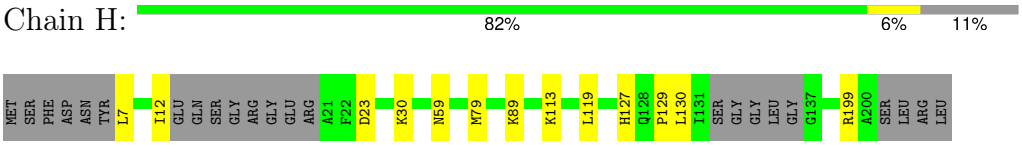
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain G:



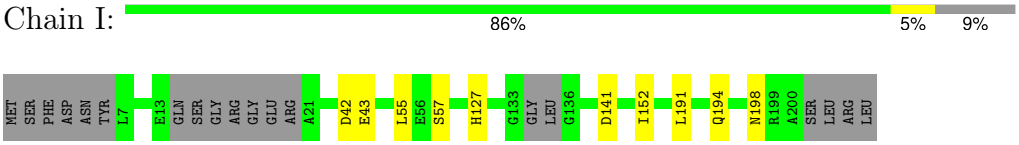
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain H:



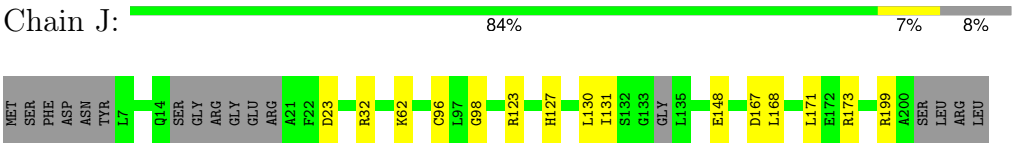
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain I:



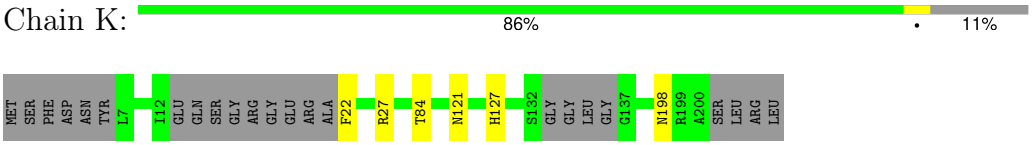
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain J:



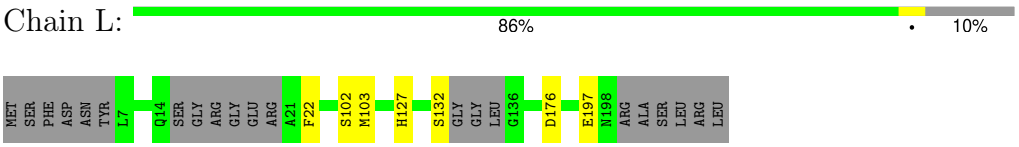
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain K:



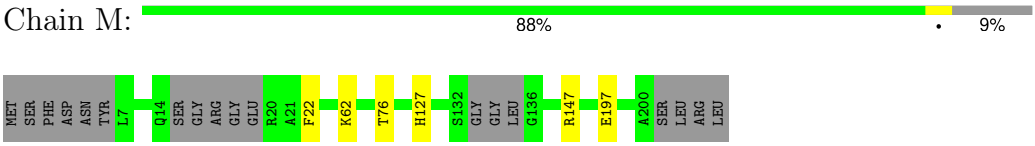
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain L:



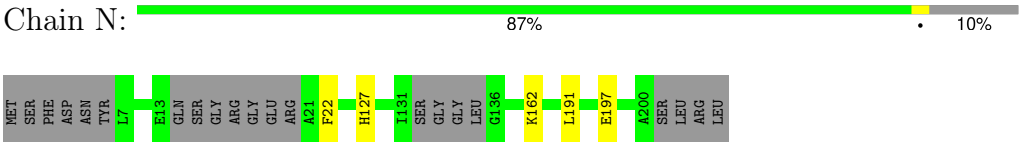
• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain M:



• Molecule 1: ATP-dependent Clp protease proteolytic subunit

Chain N:



4 Data and refinement statistics (i)

EDS failed to run properly - this section is therefore incomplete.

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	152.80Å 357.78Å 180.51Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.85 – 2.33	Depositor
% Data completeness (in resolution range)	98.8 (48.85-2.33)	Depositor
R_{merge}	0.16	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	0.29 (at 2.34Å)	Xtriage
Refinement program	PHENIX 1.21.1_5286	Depositor
R, R_{free}	0.222 , 0.282	Depositor
Wilson B-factor (Å^2)	51.6	Xtriage
Anisotropy	0.021	Xtriage
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	31127	wwPDB-VP
Average B, all atoms (Å^2)	76.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.93% 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: X3O

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	0.53	0/1496	0.68	0/2013
1	B	0.48	0/1468	0.66	0/1975
1	C	0.41	0/1461	0.63	0/1966
1	D	0.36	0/1382	0.61	0/1859
1	E	0.40	0/1386	0.62	0/1864
1	F	0.41	0/1381	0.63	0/1857
1	G	0.49	0/1433	0.68	1/1927 (0.1%)
1	H	0.44	0/1437	0.63	0/1935
1	I	0.36	0/1460	0.60	0/1965
1	J	0.38	0/1477	0.60	0/1988
1	K	0.34	0/1438	0.58	0/1936
1	L	0.37	0/1449	0.57	0/1951
1	M	0.43	0/1476	0.62	0/1986
1	N	0.47	1/1450 (0.1%)	0.63	0/1952
1	V	0.49	0/1525	0.71	0/2052
1	W	0.48	0/1498	0.71	1/2013 (0.0%)
1	X	0.46	0/1529	0.69	1/2057 (0.0%)
1	Y	0.47	0/1440	0.68	0/1935
1	Z	0.47	0/1392	0.67	0/1872
1	a	0.50	0/1525	0.68	0/2052
1	b	0.49	0/1511	0.73	2/2033 (0.1%)
All	All	0.44	1/30614 (0.0%)	0.65	5/41188 (0.0%)

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	H	0	2
1	J	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	W	0	1
All	All	0	4

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	N	197	GLU	CB-CG	5.43	1.62	1.52

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	G	97	LEU	CA-CB-CG	6.91	131.20	115.30
1	b	191	LEU	CA-CB-CG	6.66	130.62	115.30
1	b	97	LEU	CA-CB-CG	6.12	129.36	115.30
1	W	28	LEU	CA-CB-CG	5.27	127.42	115.30
1	X	7	LEU	CA-CB-CG	5.16	127.17	115.30

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	H	129	PRO	Peptide
1	H	199	ARG	Sidechain
1	J	199	ARG	Sidechain
1	W	177	ARG	Sidechain

5.2 Too-close contacts (i)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	184/204 (90%)	174 (95%)	7 (4%)	3 (2%)	8 6
1	B	180/204 (88%)	173 (96%)	4 (2%)	3 (2%)	7 5
1	C	179/204 (88%)	172 (96%)	7 (4%)	0	100 100
1	D	170/204 (83%)	158 (93%)	10 (6%)	2 (1%)	11 9
1	E	171/204 (84%)	163 (95%)	8 (5%)	0	100 100
1	F	170/204 (83%)	160 (94%)	10 (6%)	0	100 100
1	G	176/204 (86%)	169 (96%)	6 (3%)	1 (1%)	22 23
1	H	175/204 (86%)	163 (93%)	10 (6%)	2 (1%)	12 10
1	I	179/204 (88%)	163 (91%)	15 (8%)	1 (1%)	22 23
1	J	181/204 (89%)	165 (91%)	14 (8%)	2 (1%)	12 10
1	K	175/204 (86%)	157 (90%)	18 (10%)	0	100 100
1	L	177/204 (87%)	164 (93%)	12 (7%)	1 (1%)	22 23
1	M	180/204 (88%)	172 (96%)	8 (4%)	0	100 100
1	N	177/204 (87%)	169 (96%)	8 (4%)	0	100 100
1	V	189/204 (93%)	179 (95%)	7 (4%)	3 (2%)	8 6
1	W	186/204 (91%)	177 (95%)	5 (3%)	4 (2%)	5 3
1	X	190/204 (93%)	180 (95%)	9 (5%)	1 (0%)	25 27
1	Y	177/204 (87%)	169 (96%)	7 (4%)	1 (1%)	22 23
1	Z	172/204 (84%)	165 (96%)	6 (4%)	1 (1%)	22 23
1	a	189/204 (93%)	177 (94%)	12 (6%)	0	100 100
1	b	187/204 (92%)	177 (95%)	6 (3%)	4 (2%)	5 3
All	All	3764/4284 (88%)	3546 (94%)	189 (5%)	29 (1%)	16 16

All (29) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	V	200	ALA
1	W	11	VAL
1	W	200	ALA
1	Z	200	ALA
1	b	15	SER
1	b	17	ARG
1	B	200	ALA
1	D	198	ASN
1	H	130	LEU
1	J	32	ARG

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Mol	Chain	Res	Type
1	b	199	ARG
1	A	16	GLY
1	G	200	ALA
1	L	102	SER
1	V	199	ARG
1	b	200	ALA
1	W	132	SER
1	A	130	LEU
1	A	198	ASN
1	B	132	SER
1	B	199	ARG
1	D	199	ARG
1	V	129	PRO
1	W	18	GLY
1	Y	59	ASN
1	I	152	ILE
1	H	59	ASN
1	X	16	GLY
1	J	98	GLY

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	161/173 (93%)	157 (98%)	4 (2%)	42	53
1	B	158/173 (91%)	151 (96%)	7 (4%)	24	30
1	C	158/173 (91%)	152 (96%)	6 (4%)	28	36
1	D	149/173 (86%)	143 (96%)	6 (4%)	27	34
1	E	149/173 (86%)	134 (90%)	15 (10%)	6	5
1	F	149/173 (86%)	145 (97%)	4 (3%)	40	50
1	G	155/173 (90%)	147 (95%)	8 (5%)	19	24
1	H	155/173 (90%)	146 (94%)	9 (6%)	17	19
1	I	157/173 (91%)	148 (94%)	9 (6%)	17	20

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	J	159/173 (92%)	147 (92%)	12 (8%)	11	11
1	K	156/173 (90%)	150 (96%)	6 (4%)	28	36
1	L	157/173 (91%)	151 (96%)	6 (4%)	28	36
1	M	159/173 (92%)	153 (96%)	6 (4%)	28	36
1	N	156/173 (90%)	152 (97%)	4 (3%)	41	51
1	V	164/173 (95%)	159 (97%)	5 (3%)	36	45
1	W	160/173 (92%)	153 (96%)	7 (4%)	24	30
1	X	164/173 (95%)	154 (94%)	10 (6%)	15	17
1	Y	154/173 (89%)	146 (95%)	8 (5%)	19	24
1	Z	150/173 (87%)	145 (97%)	5 (3%)	33	41
1	a	164/173 (95%)	156 (95%)	8 (5%)	21	26
1	b	162/173 (94%)	156 (96%)	6 (4%)	29	37
All	All	3296/3633 (91%)	3145 (95%)	151 (5%)	23	28

All (151) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	V	12	ILE
1	V	17	ARG
1	V	127	HIS
1	V	129	PRO
1	V	202	LEU
1	W	17	ARG
1	W	23	ASP
1	W	27	ARG
1	W	28	LEU
1	W	127	HIS
1	W	154	GLU
1	W	191	LEU
1	X	7	LEU
1	X	19	GLU
1	X	23	ASP
1	X	30	LYS
1	X	123	ARG
1	X	127	HIS
1	X	130	LEU
1	X	147	ARG
1	X	160	MET

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Mol	Chain	Res	Type
1	X	167	ASP
1	Y	17	ARG
1	Y	22	PHE
1	Y	57	SER
1	Y	123	ARG
1	Y	127	HIS
1	Y	132	SER
1	Y	156	LEU
1	Y	199	ARG
1	Z	23	ASP
1	Z	57	SER
1	Z	127	HIS
1	Z	158	ARG
1	Z	191	LEU
1	a	12	ILE
1	a	14	GLN
1	a	22	PHE
1	a	57	SER
1	a	76	THR
1	a	127	HIS
1	a	166	ARG
1	a	172	GLU
1	b	7	LEU
1	b	22	PHE
1	b	62	LYS
1	b	76	THR
1	b	127	HIS
1	b	184	GLU
1	A	14	GLN
1	A	102	SER
1	A	127	HIS
1	A	130	LEU
1	B	7	LEU
1	B	24	ILE
1	B	97	LEU
1	B	123	ARG
1	B	127	HIS
1	B	156	LEU
1	B	198	ASN
1	C	12	ILE
1	C	23	ASP
1	C	57	SER

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Mol	Chain	Res	Type
1	C	127	HIS
1	C	158	ARG
1	C	199	ARG
1	D	42	ASP
1	D	97	LEU
1	D	103	MET
1	D	122	SER
1	D	125	MET
1	D	127	HIS
1	E	23	ASP
1	E	30	LYS
1	E	58	GLU
1	E	59	ASN
1	E	93	SER
1	E	97	LEU
1	E	102	SER
1	E	113	LYS
1	E	125	MET
1	E	127	HIS
1	E	143	GLU
1	E	147	ARG
1	E	170	ASP
1	E	173	ARG
1	E	196	LEU
1	F	113	LYS
1	F	123	ARG
1	F	127	HIS
1	F	173	ARG
1	G	10	THR
1	G	23	ASP
1	G	24	ILE
1	G	76	THR
1	G	127	HIS
1	G	147	ARG
1	G	158	ARG
1	G	179	ASN
1	H	7	LEU
1	H	12	ILE
1	H	23	ASP
1	H	30	LYS
1	H	79	MET
1	H	89	LYS

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Mol	Chain	Res	Type
1	H	113	LYS
1	H	119	LEU
1	H	127	HIS
1	I	42	ASP
1	I	43	GLU
1	I	55	LEU
1	I	57	SER
1	I	127	HIS
1	I	141	ASP
1	I	191	LEU
1	I	194	GLN
1	I	198	ASN
1	J	23	ASP
1	J	62	LYS
1	J	96	CYS
1	J	123	ARG
1	J	127	HIS
1	J	130	LEU
1	J	131	ILE
1	J	148	GLU
1	J	167	ASP
1	J	168	LEU
1	J	171	LEU
1	J	173	ARG
1	K	22	PHE
1	K	27	ARG
1	K	84	THR
1	K	121	ASN
1	K	127	HIS
1	K	198	ASN
1	L	22	PHE
1	L	103	MET
1	L	127	HIS
1	L	132	SER
1	L	176	ASP
1	L	197	GLU
1	M	22	PHE
1	M	62	LYS
1	M	76	THR
1	M	127	HIS
1	M	147	ARG
1	M	197	GLU

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Mol	Chain	Res	Type
1	N	22	PHE
1	N	127	HIS
1	N	162	LYS
1	N	191	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

Mol	Chain	Res	Type
1	V	99	GLN
1	V	194	GLN
1	X	145	HIS
1	Z	99	GLN
1	b	194	GLN
1	A	14	GLN
1	B	138	GLN
1	B	157	ASN
1	B	198	ASN
1	D	127	HIS
1	D	157	ASN
1	D	179	ASN
1	D	198	ASN
1	E	59	ASN
1	F	46	ASN
1	F	179	ASN
1	G	179	ASN
1	I	46	ASN
1	I	157	ASN
1	K	198	ASN
1	M	194	GLN
1	N	194	GLN

5.3.3 RNA (i)

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)

11 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	X3O	V	301	-	39,43,43	1.47	4 (10%)	53,67,67	1.62	13 (24%)
2	X3O	N	301	-	39,43,43	1.51	5 (12%)	53,67,67	1.77	13 (24%)
2	X3O	Z	301	-	39,43,43	1.49	5 (12%)	53,67,67	1.74	14 (26%)
2	X3O	a	301	-	39,43,43	1.46	5 (12%)	53,67,67	1.65	12 (22%)
2	X3O	H	301	-	39,43,43	1.29	3 (7%)	53,67,67	1.59	13 (24%)
2	X3O	M	301	-	39,43,43	1.48	5 (12%)	53,67,67	1.44	12 (22%)
2	X3O	b	301	-	39,43,43	1.43	5 (12%)	53,67,67	1.94	15 (28%)
2	X3O	W	301	-	39,43,43	1.41	4 (10%)	53,67,67	1.70	11 (20%)
2	X3O	X	301	-	39,43,43	1.45	5 (12%)	53,67,67	1.63	11 (20%)
2	X3O	J	301	-	39,43,43	1.52	6 (15%)	53,67,67	1.78	14 (26%)
2	X3O	L	301	-	39,43,43	1.48	4 (10%)	53,67,67	1.57	10 (18%)

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	X3O	V	301	-	-	2/47/52/52	0/3/3/3
2	X3O	N	301	-	-	8/47/52/52	0/3/3/3
2	X3O	Z	301	-	-	9/47/52/52	0/3/3/3
2	X3O	a	301	-	-	9/47/52/52	0/3/3/3
2	X3O	H	301	-	-	9/47/52/52	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	X3O	M	301	-	-	7/47/52/52	0/3/3/3
2	X3O	b	301	-	-	7/47/52/52	0/3/3/3
2	X3O	W	301	-	-	5/47/52/52	0/3/3/3
2	X3O	X	301	-	-	4/47/52/52	0/3/3/3
2	X3O	J	301	-	-	13/47/52/52	0/3/3/3
2	X3O	L	301	-	-	5/47/52/52	0/3/3/3

All (51) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	L	301	X3O	C14-N15	5.43	1.46	1.33
2	a	301	X3O	C14-N15	5.40	1.46	1.33
2	J	301	X3O	C14-N15	5.29	1.46	1.33
2	Z	301	X3O	C14-N15	5.19	1.46	1.33
2	M	301	X3O	C14-N15	5.17	1.46	1.33
2	V	301	X3O	C14-N15	5.14	1.45	1.33
2	N	301	X3O	C14-N15	5.12	1.45	1.33
2	W	301	X3O	C14-N15	4.97	1.45	1.33
2	X	301	X3O	C14-N15	4.84	1.45	1.33
2	H	301	X3O	C14-N15	4.68	1.44	1.33
2	b	301	X3O	C14-N15	4.21	1.43	1.33
2	N	301	X3O	C19-S18	4.20	1.83	1.77
2	J	301	X3O	C19-S18	4.19	1.83	1.77
2	a	301	X3O	C19-S18	3.95	1.83	1.77
2	L	301	X3O	C19-S18	3.82	1.83	1.77
2	X	301	X3O	C19-S18	3.76	1.83	1.77
2	V	301	X3O	C19-S18	3.70	1.82	1.77
2	Z	301	X3O	C19-S18	3.62	1.82	1.77
2	b	301	X3O	C19-S18	3.47	1.82	1.77
2	W	301	X3O	C19-S18	3.30	1.82	1.77
2	M	301	X3O	C19-S18	3.27	1.82	1.77
2	H	301	X3O	C19-S18	3.07	1.81	1.77
2	b	301	X3O	O29-C14	-2.99	1.17	1.22
2	Z	301	X3O	P02-O01	-2.74	1.46	1.49
2	M	301	X3O	P02-O01	-2.72	1.46	1.49
2	b	301	X3O	P02-O01	-2.60	1.46	1.49
2	M	301	X3O	C07-C06	2.60	1.55	1.49
2	X	301	X3O	O29-C14	-2.59	1.18	1.22
2	W	301	X3O	P02-O01	-2.59	1.46	1.49
2	Z	301	X3O	C07-C06	2.58	1.55	1.49
2	V	301	X3O	C07-C06	2.49	1.54	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	301	X3O	O29-C14	-2.40	1.18	1.22
2	L	301	X3O	C07-C06	2.39	1.54	1.49
2	N	301	X3O	C21-C20	2.32	1.55	1.50
2	a	301	X3O	P02-O01	-2.28	1.46	1.49
2	W	301	X3O	C07-C06	2.27	1.54	1.49
2	N	301	X3O	O29-C14	-2.27	1.19	1.22
2	M	301	X3O	O29-C14	-2.26	1.19	1.22
2	N	301	X3O	P02-O01	-2.22	1.47	1.49
2	a	301	X3O	O29-C14	-2.22	1.19	1.22
2	J	301	X3O	C07-C06	2.21	1.54	1.49
2	J	301	X3O	O29-C14	-2.16	1.19	1.22
2	X	301	X3O	C21-C20	2.15	1.55	1.50
2	J	301	X3O	C21-C20	2.15	1.55	1.50
2	Z	301	X3O	C21-C20	2.14	1.55	1.50
2	L	301	X3O	O29-C14	-2.13	1.19	1.22
2	a	301	X3O	C21-C20	2.13	1.55	1.50
2	J	301	X3O	P02-O01	-2.11	1.47	1.49
2	b	301	X3O	C21-C20	2.08	1.55	1.50
2	X	301	X3O	C07-C06	2.02	1.54	1.49
2	V	301	X3O	P02-O01	-2.01	1.47	1.49

All (138) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	Z	301	X3O	C17-S18-C19	6.26	116.07	103.05
2	b	301	X3O	C35-C34-N33	-5.16	118.54	123.38
2	N	301	X3O	C35-C34-N33	-4.85	118.83	123.38
2	X	301	X3O	C13-C14-N15	4.78	122.55	116.95
2	a	301	X3O	C35-C34-N33	-4.57	119.09	123.38
2	b	301	X3O	C40-C35-C34	4.51	122.64	117.73
2	W	301	X3O	C13-C14-N15	4.38	122.08	116.95
2	J	301	X3O	C17-S18-C19	4.33	112.06	103.05
2	N	301	X3O	C40-C35-C34	4.32	122.43	117.73
2	H	301	X3O	C35-C34-N33	-4.25	119.39	123.38
2	Z	301	X3O	C35-C34-N33	-4.08	119.55	123.38
2	J	301	X3O	C11-C06-C07	-4.06	116.19	120.69
2	b	301	X3O	C16-N15-C14	-3.96	112.94	121.97
2	V	301	X3O	C35-C34-N33	-3.96	119.66	123.38
2	W	301	X3O	C35-C34-N33	-3.95	119.68	123.38
2	a	301	X3O	C13-C14-N15	3.90	121.53	116.95
2	L	301	X3O	C35-C34-N33	-3.89	119.73	123.38
2	N	301	X3O	F37-C36-C35	-3.78	104.81	112.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	J	301	X3O	C35-C34-N33	-3.72	119.89	123.38
2	W	301	X3O	C16-N15-C14	-3.71	113.52	121.97
2	M	301	X3O	C35-C34-N33	-3.63	119.97	123.38
2	b	301	X3O	F39-C36-C35	-3.59	105.20	112.90
2	L	301	X3O	C25-C20-C19	3.53	120.54	117.44
2	V	301	X3O	C40-C35-C34	3.53	121.57	117.73
2	W	301	X3O	F38-C36-C35	-3.52	105.36	112.90
2	J	301	X3O	C05-C06-C07	3.41	125.44	119.96
2	N	301	X3O	C41-C40-C35	-3.39	116.48	121.17
2	X	301	X3O	C35-C34-N33	-3.38	120.21	123.38
2	a	301	X3O	C40-C35-C34	3.33	121.35	117.73
2	J	301	X3O	C13-C14-N15	3.29	120.81	116.95
2	J	301	X3O	C04-C05-C06	-3.29	116.63	121.17
2	N	301	X3O	F09-C07-C06	-3.25	105.93	112.90
2	N	301	X3O	F39-C36-C35	-3.19	106.06	112.90
2	X	301	X3O	F38-C36-C35	-3.19	106.07	112.90
2	W	301	X3O	C40-C35-C34	3.19	121.20	117.73
2	a	301	X3O	C17-S18-C19	3.18	109.66	103.05
2	L	301	X3O	C17-S18-C19	3.17	109.65	103.05
2	V	301	X3O	C41-C40-C35	-3.17	116.79	121.17
2	b	301	X3O	F24-C21-C20	-3.17	107.03	112.65
2	b	301	X3O	C17-C16-N15	-3.12	105.89	112.41
2	L	301	X3O	F23-C21-C20	-3.10	107.16	112.65
2	b	301	X3O	F08-C07-C06	-3.06	106.34	112.90
2	b	301	X3O	C16-C17-S18	-3.01	103.34	109.78
2	H	301	X3O	C40-C35-C34	3.01	121.00	117.73
2	Z	301	X3O	C40-C35-C34	2.97	120.96	117.73
2	Z	301	X3O	P02-C32-C41	-2.95	113.88	120.71
2	b	301	X3O	C41-C40-C35	-2.94	117.11	121.17
2	V	301	X3O	C17-C16-N15	-2.92	106.32	112.41
2	H	301	X3O	C17-C16-N15	-2.90	106.36	112.41
2	X	301	X3O	C40-C35-C34	2.88	120.86	117.73
2	b	301	X3O	C25-C20-C21	2.87	124.21	118.06
2	J	301	X3O	C04-C03-N12	-2.86	119.21	123.22
2	b	301	X3O	C13-C14-N15	2.84	120.28	116.95
2	Z	301	X3O	F39-C36-C35	-2.81	106.87	112.90
2	W	301	X3O	C41-C40-C35	-2.81	117.29	121.17
2	N	301	X3O	C04-C05-C06	-2.81	117.29	121.17
2	b	301	X3O	F38-C36-C35	-2.80	106.91	112.90
2	M	301	X3O	C17-S18-C19	2.80	108.87	103.05
2	X	301	X3O	C16-N15-C14	-2.78	115.63	121.97
2	X	301	X3O	C41-C40-C35	-2.74	117.38	121.17

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	L	301	X3O	C40-C35-C34	2.74	120.71	117.73
2	V	301	X3O	F37-C36-C35	-2.73	107.06	112.90
2	N	301	X3O	C34-C35-C36	-2.72	117.67	120.69
2	N	301	X3O	F08-C07-C06	-2.71	107.08	112.90
2	a	301	X3O	C41-C40-C35	-2.69	117.45	121.17
2	V	301	X3O	F08-C07-C06	-2.67	107.19	112.90
2	H	301	X3O	F08-C07-C06	-2.64	107.24	112.90
2	J	301	X3O	F37-C36-C35	-2.63	107.27	112.90
2	b	301	X3O	C34-C35-C36	-2.58	117.83	120.69
2	H	301	X3O	F22-C21-C20	-2.56	108.10	112.65
2	H	301	X3O	C41-C40-C35	-2.56	117.63	121.17
2	Z	301	X3O	C16-C17-S18	-2.56	104.31	109.78
2	a	301	X3O	F37-C36-C35	-2.55	107.44	112.90
2	W	301	X3O	O29-C14-N15	-2.54	117.24	122.64
2	M	301	X3O	F39-C36-C35	-2.52	107.50	112.90
2	J	301	X3O	F22-C21-C20	-2.52	108.18	112.65
2	a	301	X3O	C04-C05-C06	-2.50	117.71	121.17
2	L	301	X3O	C41-C40-C35	-2.49	117.73	121.17
2	W	301	X3O	F10-C07-C06	-2.49	107.57	112.90
2	a	301	X3O	F10-C07-C06	-2.48	107.59	112.90
2	L	301	X3O	C04-C03-N12	-2.48	119.75	123.22
2	Z	301	X3O	C40-C35-C36	-2.46	116.00	119.96
2	Z	301	X3O	C04-C03-N12	-2.46	119.78	123.22
2	Z	301	X3O	F23-C21-C20	-2.43	108.34	112.65
2	J	301	X3O	C17-C16-N15	-2.43	107.35	112.41
2	M	301	X3O	F22-C21-C20	-2.42	108.36	112.65
2	Z	301	X3O	C41-C40-C35	-2.39	117.86	121.17
2	H	301	X3O	F37-C36-C35	-2.38	107.79	112.90
2	V	301	X3O	F38-C36-C35	-2.36	107.84	112.90
2	M	301	X3O	F09-C07-C06	-2.36	107.84	112.90
2	M	301	X3O	C41-C40-C35	-2.34	117.93	121.17
2	X	301	X3O	C06-C11-N12	-2.34	121.18	123.38
2	M	301	X3O	C17-C16-N15	-2.34	107.52	112.41
2	V	301	X3O	C04-C05-C06	-2.33	117.94	121.17
2	H	301	X3O	F38-C36-C35	-2.32	107.93	112.90
2	J	301	X3O	C05-C04-C03	2.32	121.40	118.08
2	V	301	X3O	C16-N15-C14	-2.31	116.71	121.97
2	V	301	X3O	C04-C03-N12	-2.30	120.00	123.22
2	a	301	X3O	F39-C36-C35	-2.30	107.97	112.90
2	Z	301	X3O	P02-C32-N33	2.29	123.40	116.54
2	W	301	X3O	C17-S18-C19	2.29	107.81	103.05
2	N	301	X3O	F39-C36-F38	2.28	113.99	105.77

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	N	301	X3O	C05-C06-C11	2.27	120.20	117.73
2	M	301	X3O	C40-C35-C34	2.24	120.17	117.73
2	M	301	X3O	C05-C06-C07	2.24	123.56	119.96
2	H	301	X3O	C13-C14-N15	2.23	119.57	116.95
2	N	301	X3O	C06-C11-N12	-2.22	121.29	123.38
2	H	301	X3O	C06-C11-N12	-2.22	121.30	123.38
2	M	301	X3O	F38-C36-C35	-2.21	108.17	112.90
2	L	301	X3O	F39-C36-C35	-2.19	108.20	112.90
2	X	301	X3O	F37-C36-C35	-2.19	108.21	112.90
2	H	301	X3O	C04-C05-C06	-2.18	118.15	121.17
2	H	301	X3O	C34-C35-C36	-2.17	118.28	120.69
2	L	301	X3O	F08-C07-C06	-2.16	108.27	112.90
2	Z	301	X3O	F37-C36-C35	-2.15	108.30	112.90
2	X	301	X3O	F08-C07-C06	-2.14	108.32	112.90
2	X	301	X3O	C04-C05-C06	-2.14	118.21	121.17
2	a	301	X3O	F39-C36-F37	2.13	113.47	105.77
2	Z	301	X3O	C34-C35-C36	2.12	123.04	120.69
2	H	301	X3O	C25-C20-C19	2.12	119.30	117.44
2	M	301	X3O	C13-C14-N15	2.11	119.43	116.95
2	a	301	X3O	F38-C36-C35	-2.11	108.39	112.90
2	b	301	X3O	C04-C05-C06	-2.10	118.26	121.17
2	L	301	X3O	F24-C21-C20	-2.09	108.94	112.65
2	V	301	X3O	F38-C36-F37	2.09	113.32	105.77
2	b	301	X3O	O29-C14-N15	-2.07	118.23	122.64
2	M	301	X3O	C04-C03-N12	-2.06	120.33	123.22
2	J	301	X3O	C41-C40-C35	-2.06	118.33	121.17
2	J	301	X3O	F10-C07-C06	-2.06	108.49	112.90
2	X	301	X3O	O29-C14-N15	-2.03	118.31	122.64
2	a	301	X3O	C34-C35-C36	-2.03	118.44	120.69
2	V	301	X3O	F22-C21-C20	-2.03	109.06	112.65
2	J	301	X3O	C40-C35-C34	2.02	119.92	117.73
2	V	301	X3O	O29-C14-C13	2.01	122.84	120.53
2	W	301	X3O	C06-C11-N12	-2.01	121.49	123.38
2	N	301	X3O	C11-C06-C07	-2.01	118.45	120.69
2	W	301	X3O	F37-C36-C35	-2.01	108.59	112.90
2	Z	301	X3O	C25-C20-C19	2.00	119.20	117.44

There are no chirality outliers.

All (78) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	W	301	X3O	N15-C16-C17-S18

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Mol	Chain	Res	Type	Atoms
2	W	301	X3O	N12-C03-P02-C13
2	X	301	X3O	N15-C16-C17-S18
2	X	301	X3O	C16-C17-S18-C19
2	Z	301	X3O	C19-C20-C21-F22
2	Z	301	X3O	C19-C20-C21-F23
2	Z	301	X3O	C19-C20-C21-F24
2	a	301	X3O	N15-C16-C17-S18
2	a	301	X3O	C41-C32-P02-C03
2	a	301	X3O	N33-C32-P02-C13
2	a	301	X3O	N33-C32-P02-C03
2	a	301	X3O	N33-C32-P02-O01
2	b	301	X3O	N15-C16-C17-S18
2	H	301	X3O	N15-C16-C17-S18
2	H	301	X3O	C04-C03-P02-C32
2	H	301	X3O	N33-C32-P02-C13
2	H	301	X3O	N33-C32-P02-C03
2	H	301	X3O	N33-C32-P02-O01
2	J	301	X3O	N15-C16-C17-S18
2	J	301	X3O	C19-C20-C21-F22
2	J	301	X3O	C19-C20-C21-F23
2	J	301	X3O	C19-C20-C21-F24
2	J	301	X3O	C04-C03-P02-C32
2	J	301	X3O	C04-C03-P02-O01
2	J	301	X3O	N12-C03-P02-C13
2	J	301	X3O	N12-C03-P02-C32
2	J	301	X3O	N12-C03-P02-O01
2	L	301	X3O	N12-C03-P02-C13
2	N	301	X3O	C19-C20-C21-F22
2	N	301	X3O	C19-C20-C21-F23
2	N	301	X3O	C19-C20-C21-F24
2	N	301	X3O	C04-C03-P02-C32
2	a	301	X3O	C19-C20-C21-F23
2	a	301	X3O	C19-C20-C21-F22
2	a	301	X3O	C19-C20-C21-F24
2	J	301	X3O	C25-C20-C21-F22
2	Z	301	X3O	N12-C03-P02-C13
2	V	301	X3O	N12-C03-P02-O01
2	W	301	X3O	N12-C03-P02-O01
2	X	301	X3O	N12-C03-P02-O01
2	Z	301	X3O	N12-C03-P02-O01
2	a	301	X3O	N12-C03-P02-O01
2	b	301	X3O	N12-C03-P02-O01

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Mol	Chain	Res	Type	Atoms
2	L	301	X3O	N12-C03-P02-O01
2	N	301	X3O	N12-C03-P02-O01
2	J	301	X3O	C04-C03-P02-C13
2	W	301	X3O	C16-C17-S18-C19
2	b	301	X3O	C16-C17-S18-C19
2	b	301	X3O	C04-C03-P02-C32
2	H	301	X3O	C16-C17-S18-C19
2	H	301	X3O	C41-C32-P02-C03
2	M	301	X3O	C34-C35-C36-F38
2	Z	301	X3O	C25-C20-C21-F22
2	J	301	X3O	C25-C20-C21-F23
2	J	301	X3O	C25-C20-C21-F24
2	Z	301	X3O	C25-C20-C21-F23
2	Z	301	X3O	C25-C20-C21-F24
2	L	301	X3O	C17-C16-N15-C14
2	L	301	X3O	C16-C17-S18-C19
2	N	301	X3O	C25-C20-C21-F23
2	M	301	X3O	C11-C06-C07-F08
2	N	301	X3O	C25-C20-C21-F24
2	N	301	X3O	C25-C20-C21-F22
2	M	301	X3O	C11-C06-C07-F09
2	V	301	X3O	C16-C17-S18-C19
2	M	301	X3O	C34-C35-C36-F39
2	H	301	X3O	N12-C03-P02-O01
2	M	301	X3O	C34-C35-C36-F37
2	W	301	X3O	C31-C13-C14-O29
2	b	301	X3O	C31-C13-C14-O29
2	M	301	X3O	C11-C06-C07-F10
2	b	301	X3O	C31-C13-C14-N15
2	X	301	X3O	N12-C03-P02-C32
2	Z	301	X3O	N12-C03-P02-C32
2	b	301	X3O	N12-C03-P02-C32
2	H	301	X3O	N12-C03-P02-C32
2	L	301	X3O	N12-C03-P02-C32
2	M	301	X3O	N12-C03-P02-C32

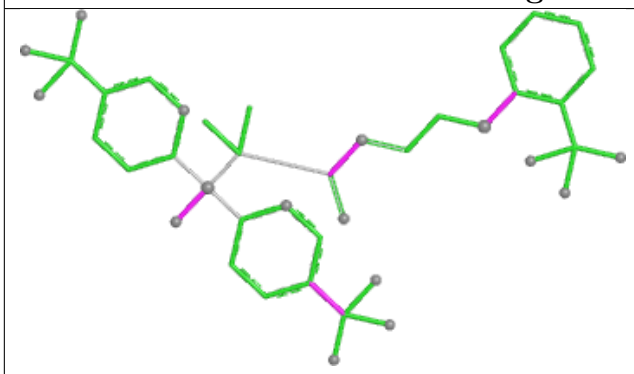
There are no ring outliers.

No monomer is involved in short contacts.

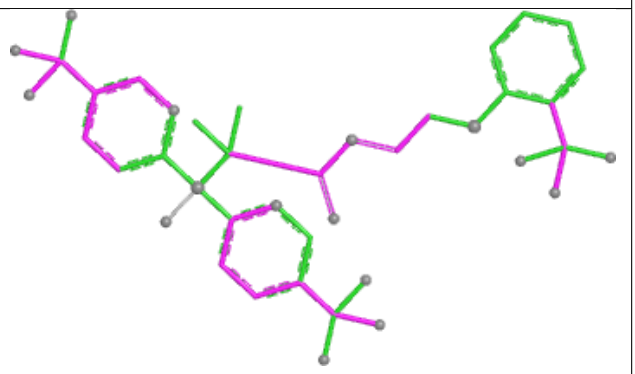
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

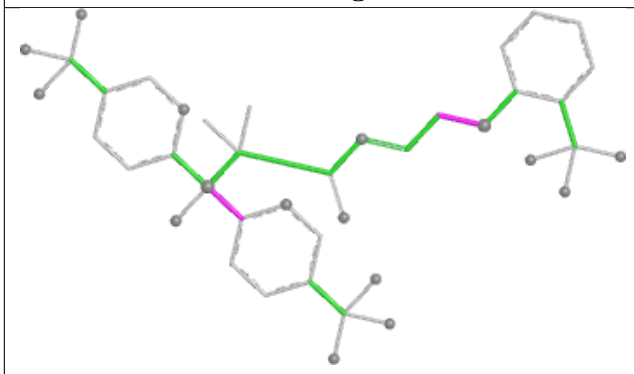
Ligand X3O V 301



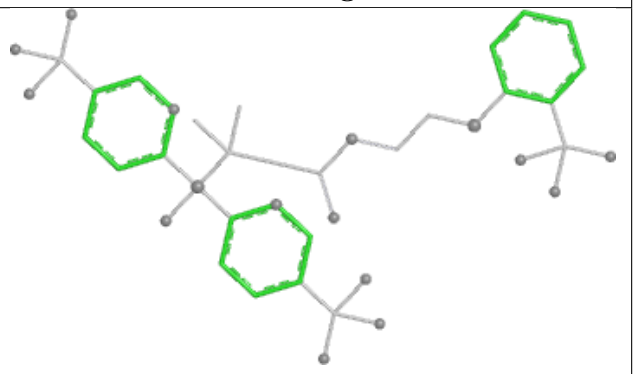
Bond lengths



Bond angles

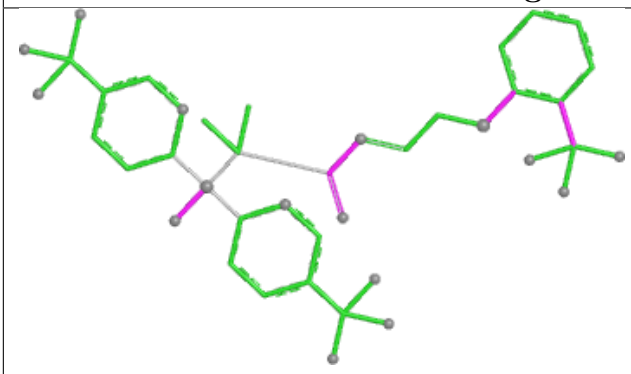


Torsions

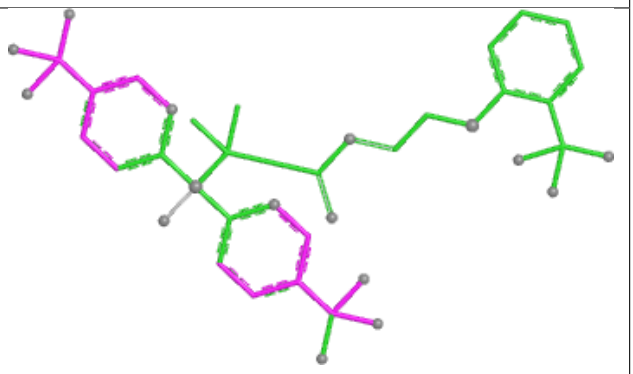


Rings

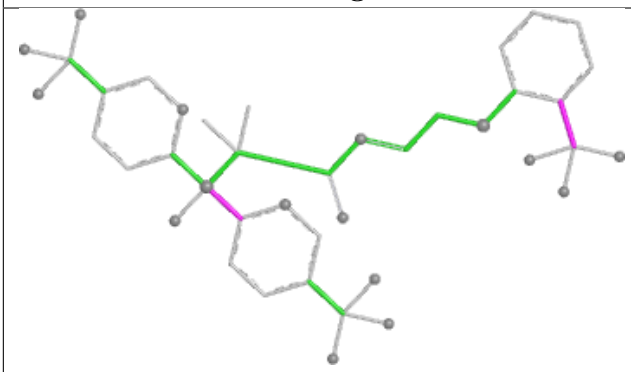
Ligand X3O N 301



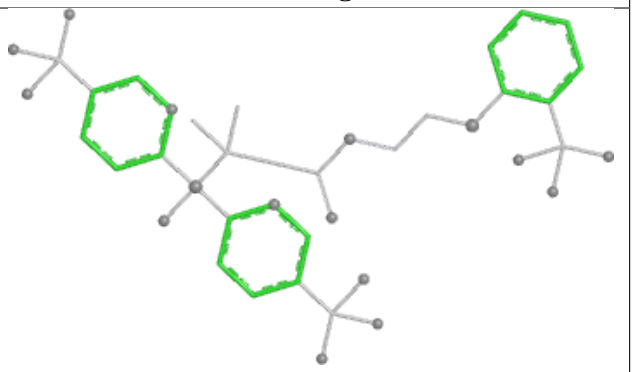
Bond lengths



Bond angles

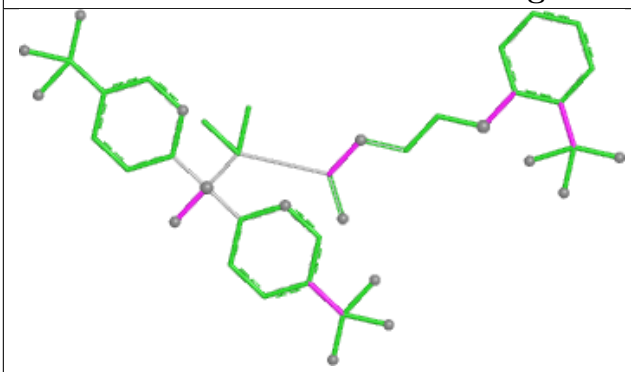


Torsions

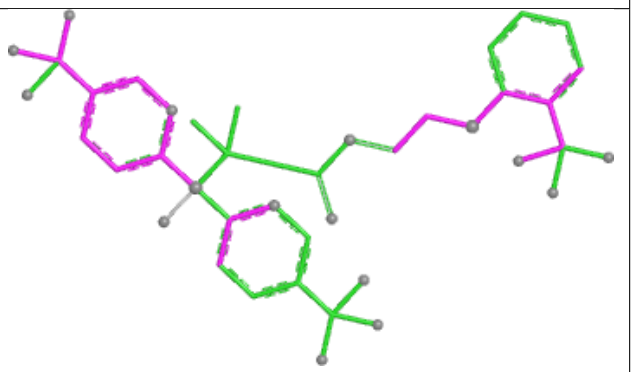


Rings

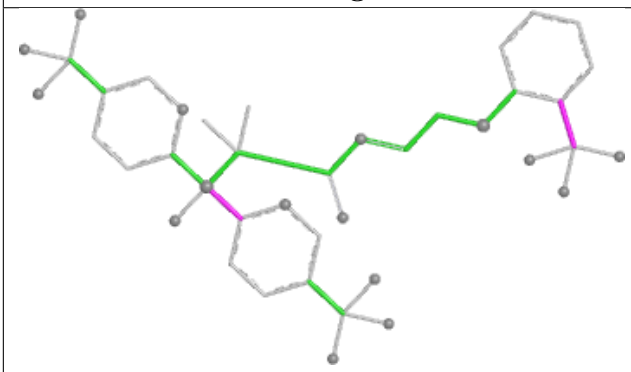
Ligand X3O Z 301



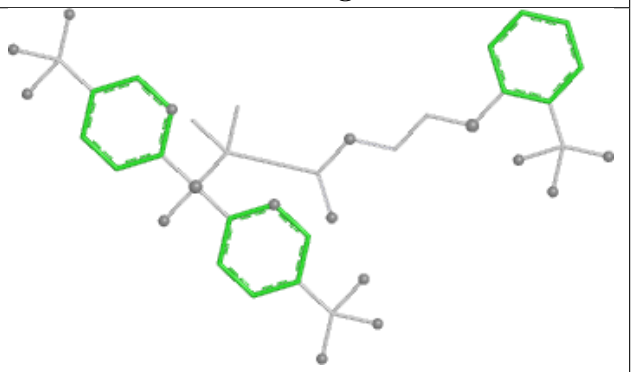
Bond lengths



Bond angles

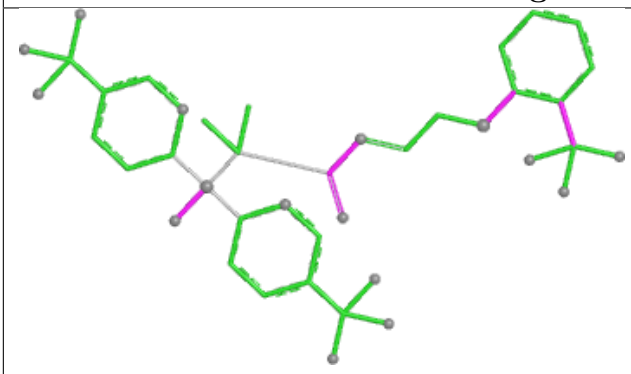


Torsions

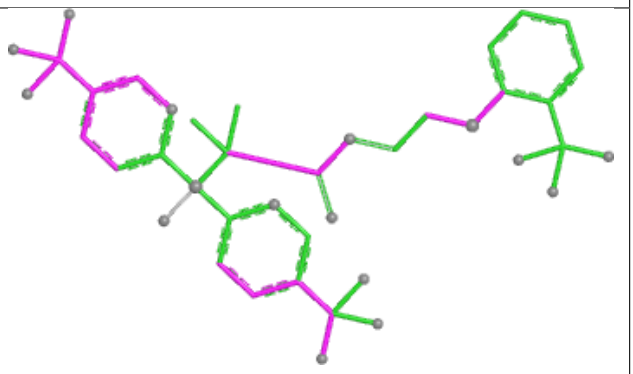


Rings

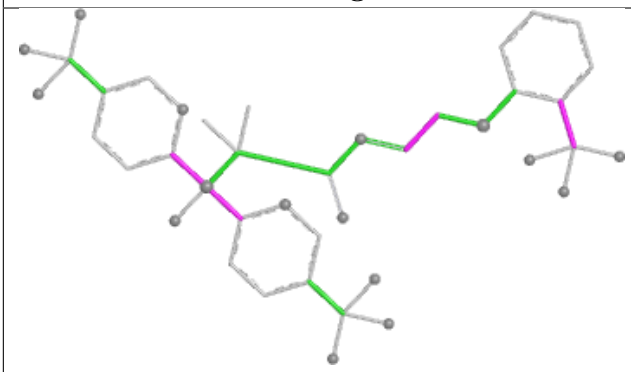
Ligand X3O a 301



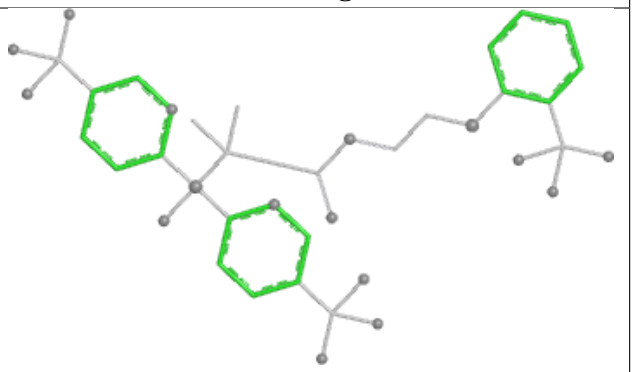
Bond lengths



Bond angles

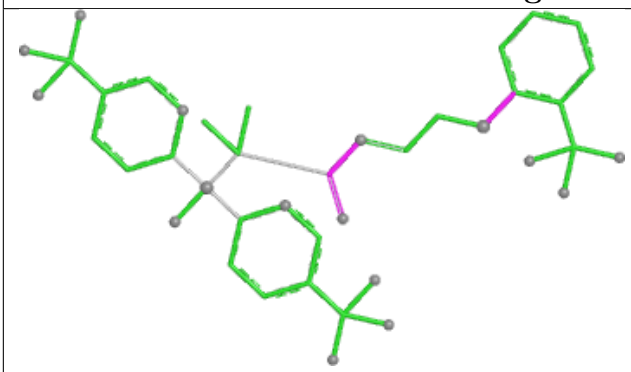


Torsions

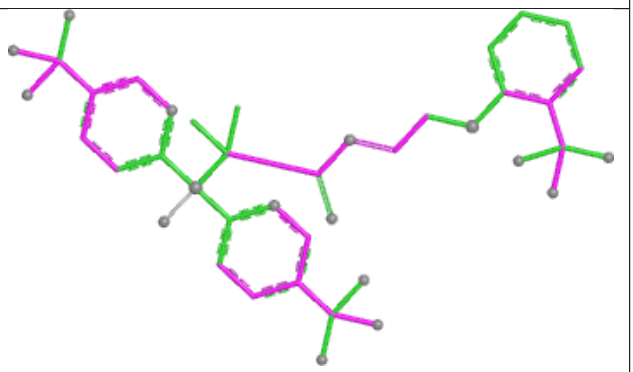


Rings

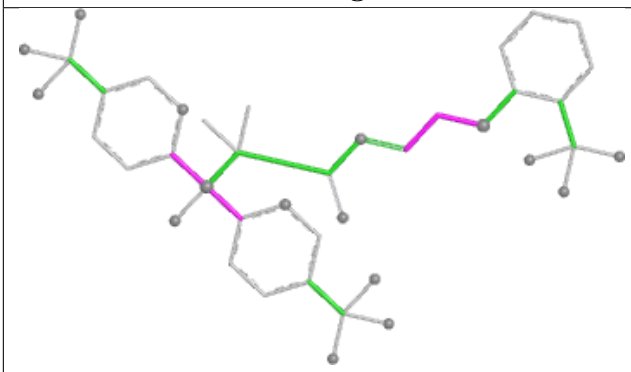
Ligand X3O H 301



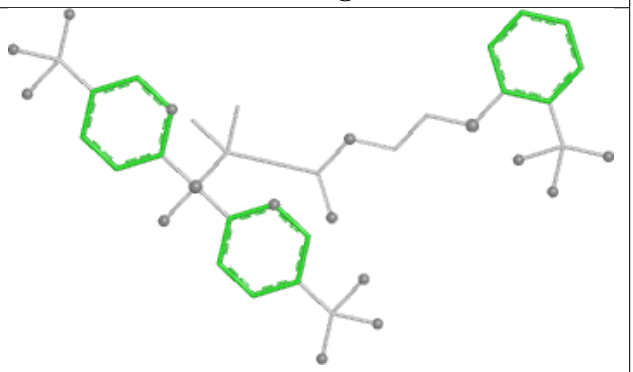
Bond lengths



Bond angles

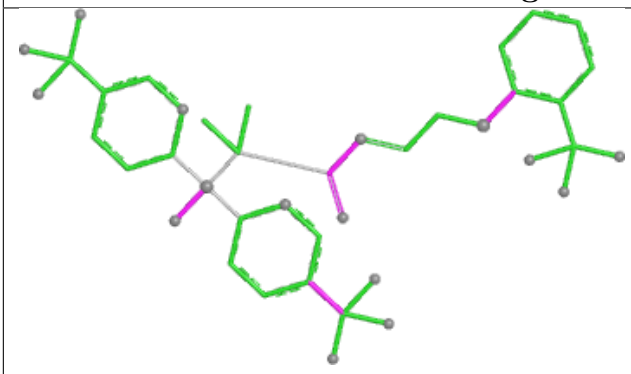


Torsions

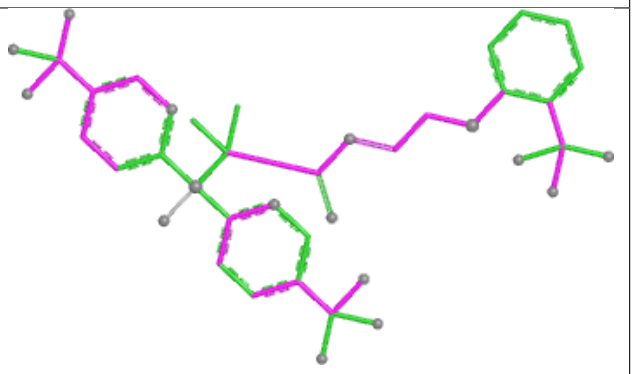


Rings

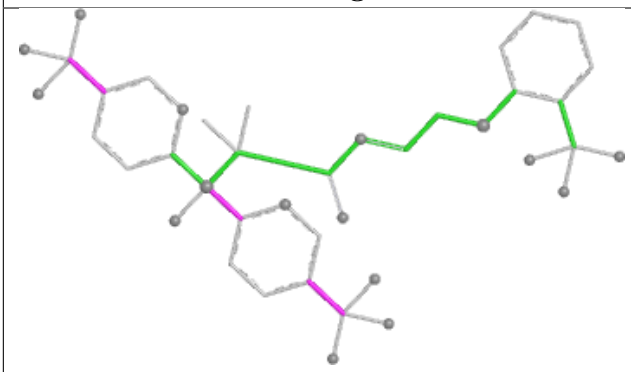
Ligand X3O M 301



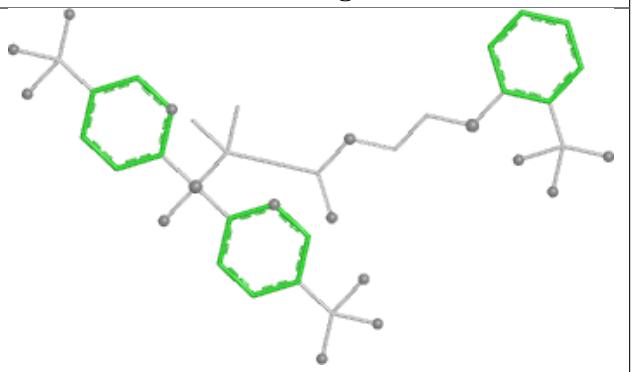
Bond lengths



Bond angles

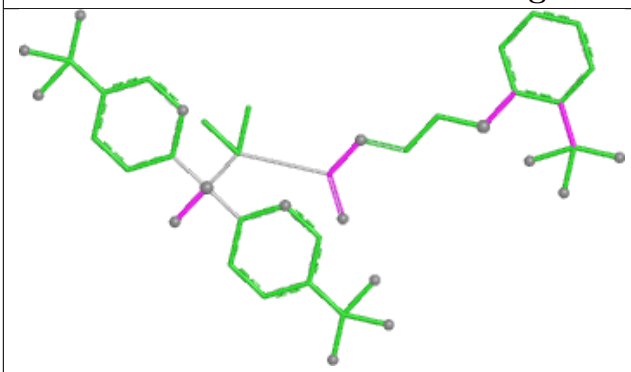


Torsions

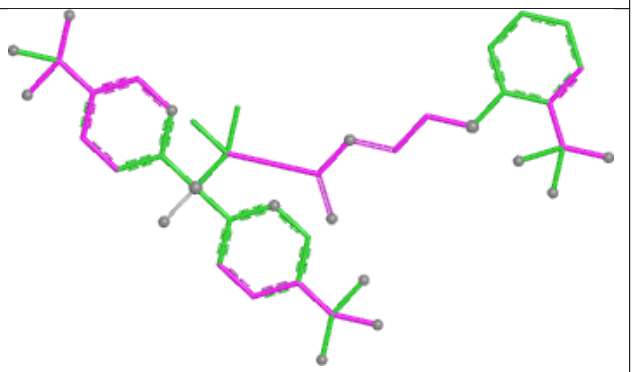


Rings

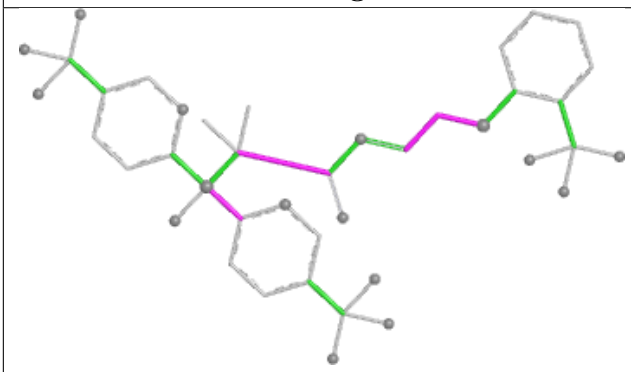
Ligand X3O b 301



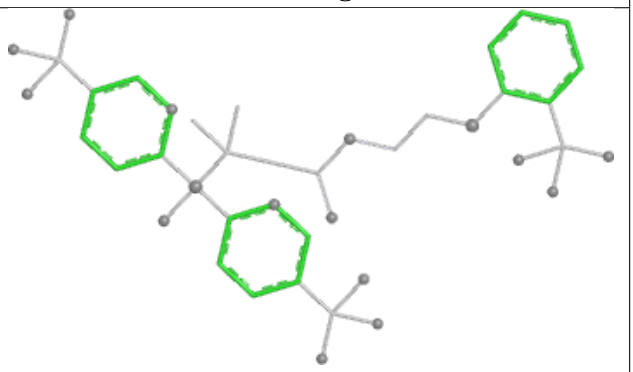
Bond lengths



Bond angles

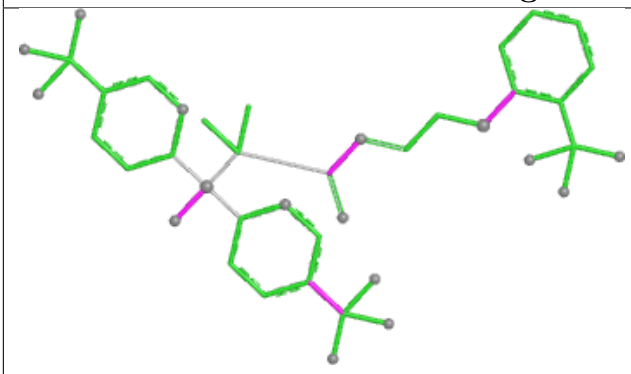


Torsions

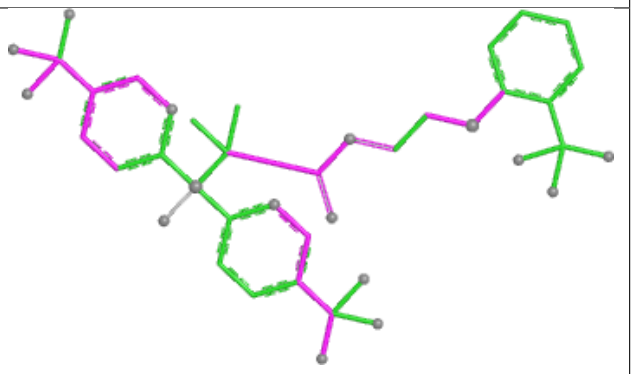


Rings

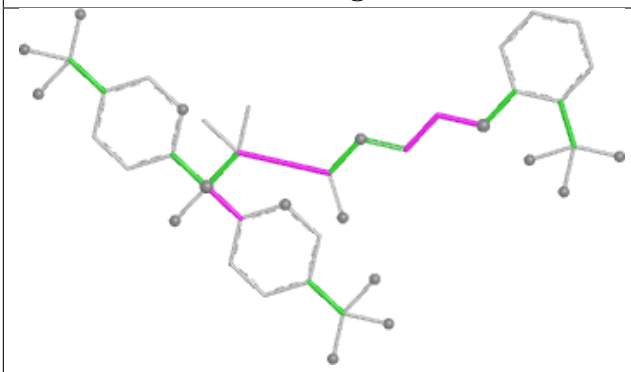
Ligand X3O W 301



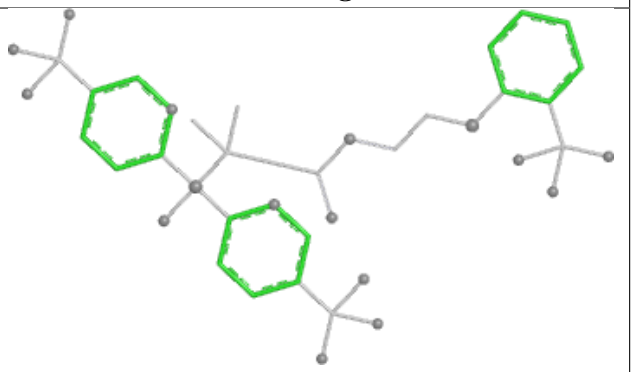
Bond lengths



Bond angles

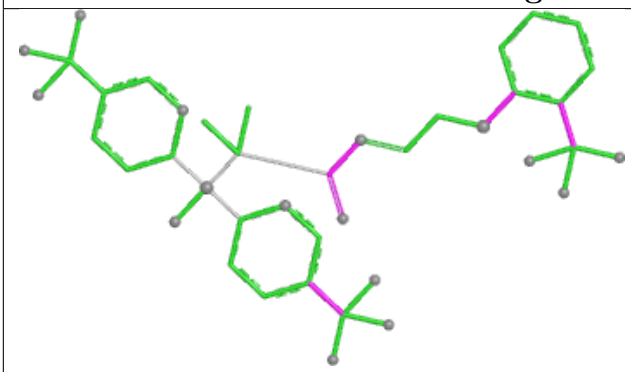


Torsions

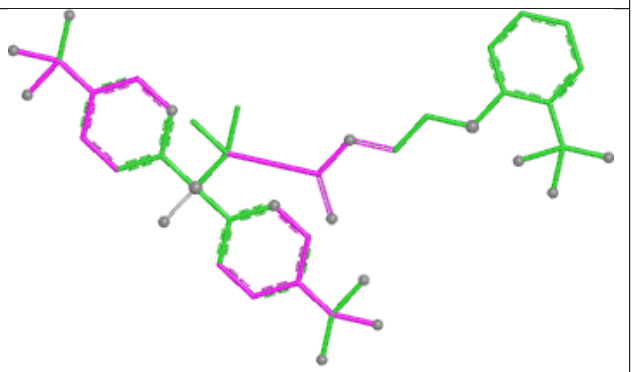


Rings

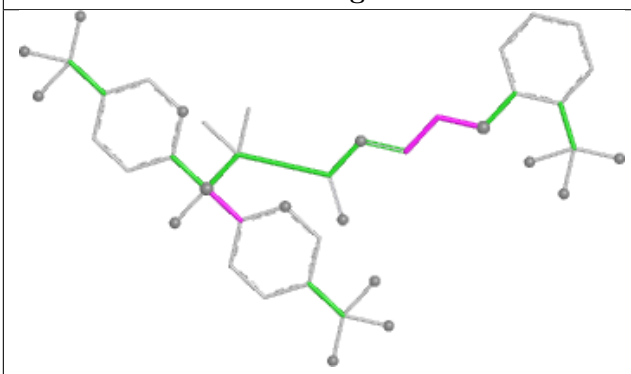
Ligand X3O X 301



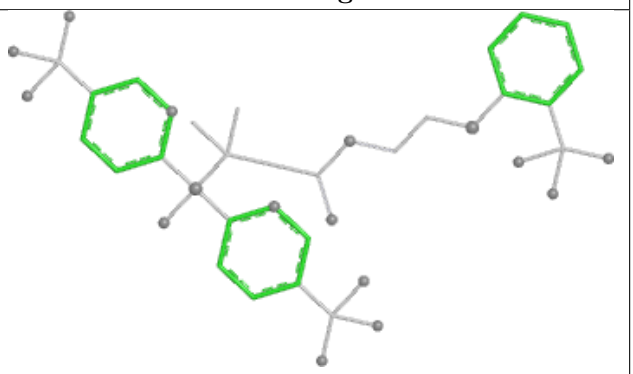
Bond lengths



Bond angles

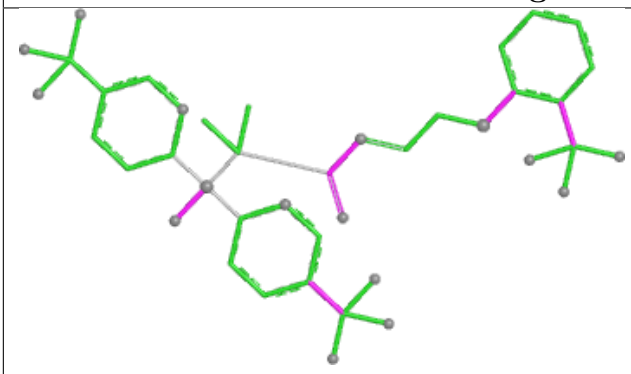


Torsions

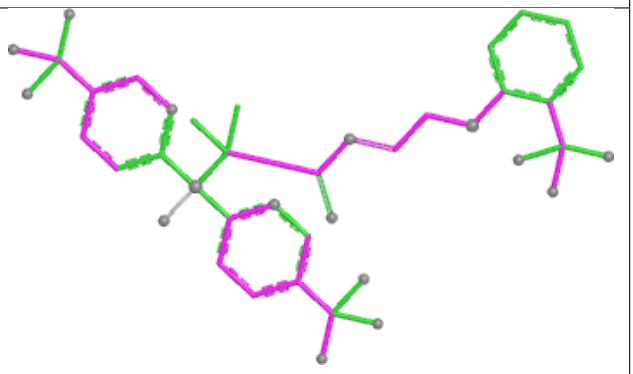


Rings

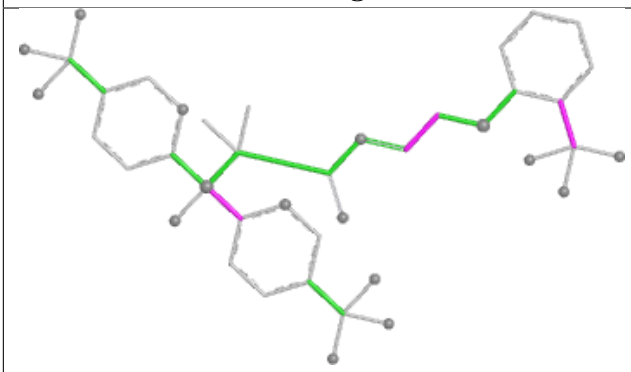
Ligand X3O J 301



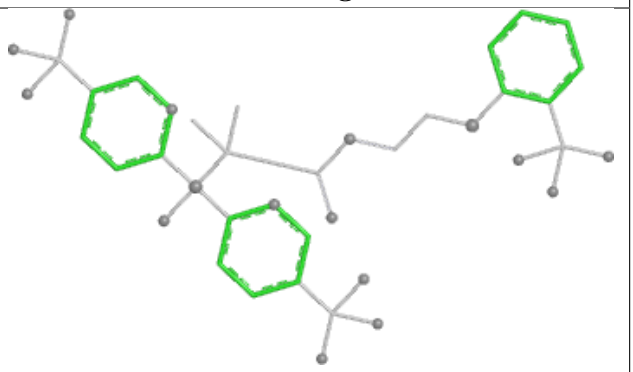
Bond lengths



Bond angles

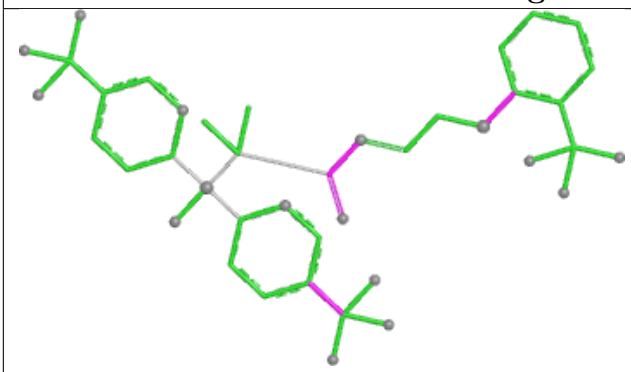


Torsions

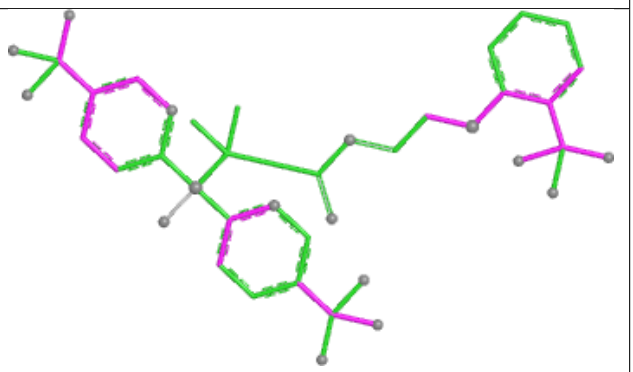


Rings

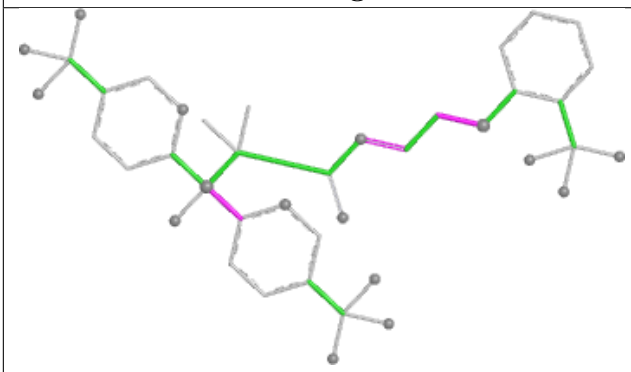
Ligand X3O L 301



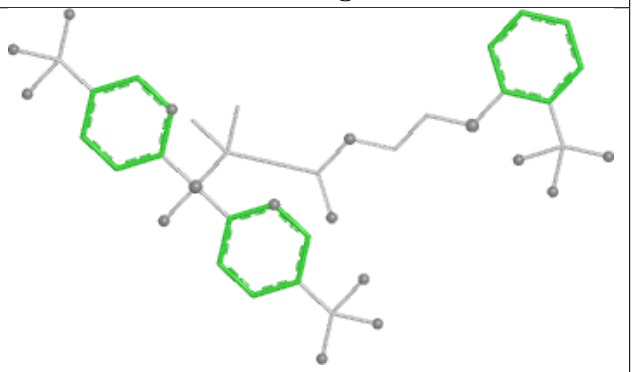
Bond lengths



Bond angles



Torsions



Rings

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

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

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

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

6.3 Carbohydrates

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

6.4 Ligands

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

6.5 Other polymers

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