Supporting Information

New Cd(II) coordination polymers bearing Y-shaped tricarboxylates ligand as photocatalysts for dye degradation

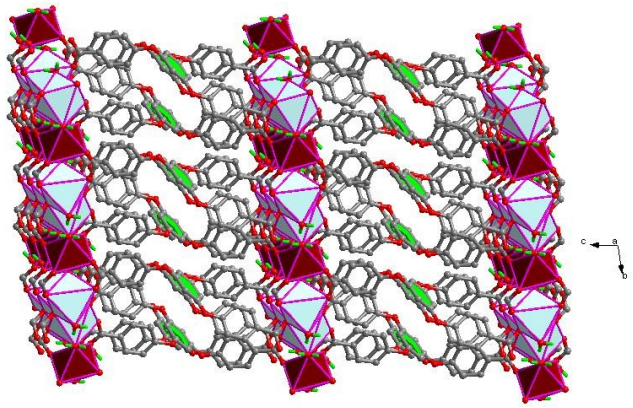

Fig. S1 view of the 3D framework in **1**.

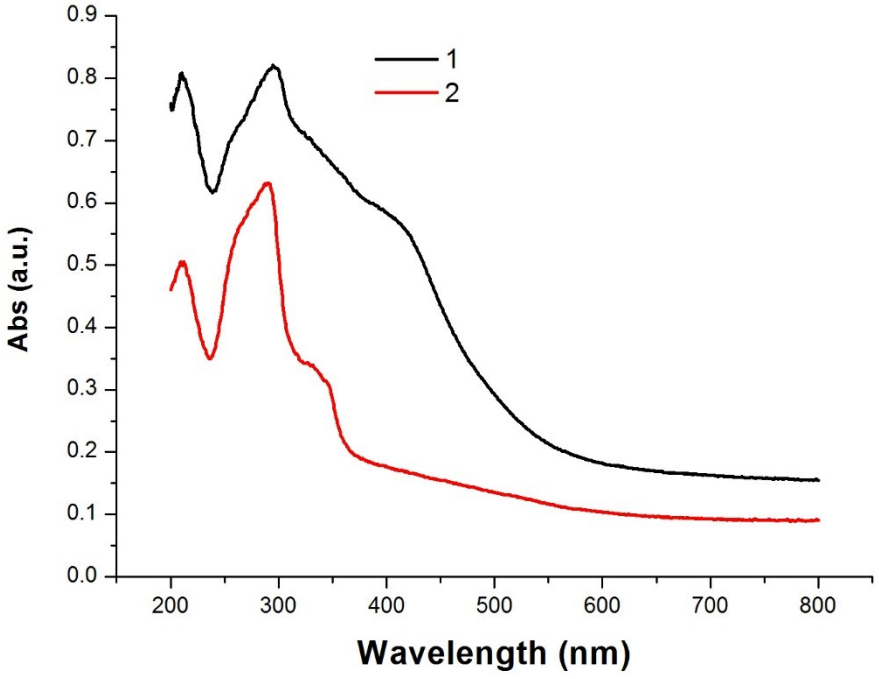

Fig. S2 Solid state UV-Vis spectra for **1** and **2**.

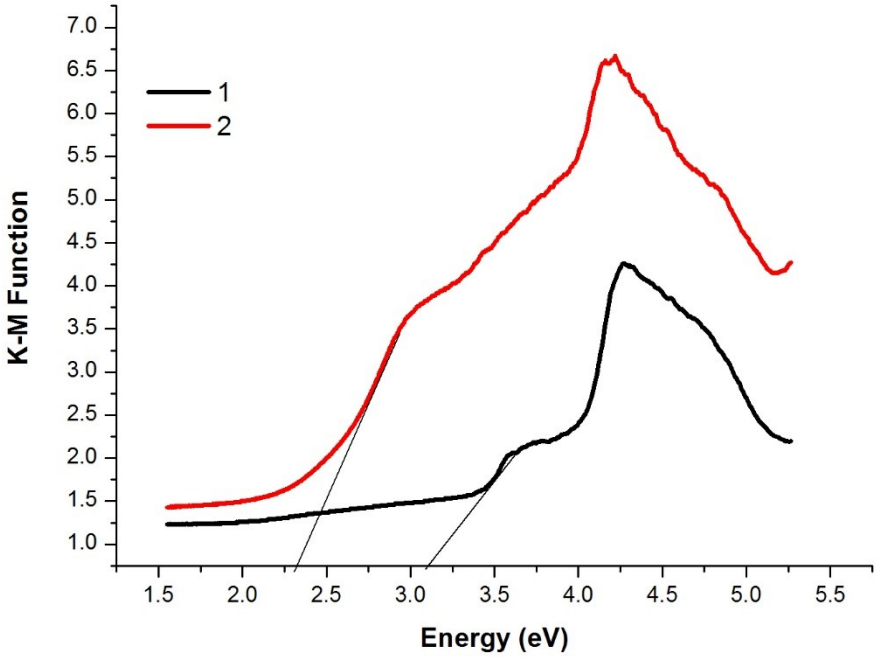

Fig. S3 Band gap calculations for **1** and **2**.

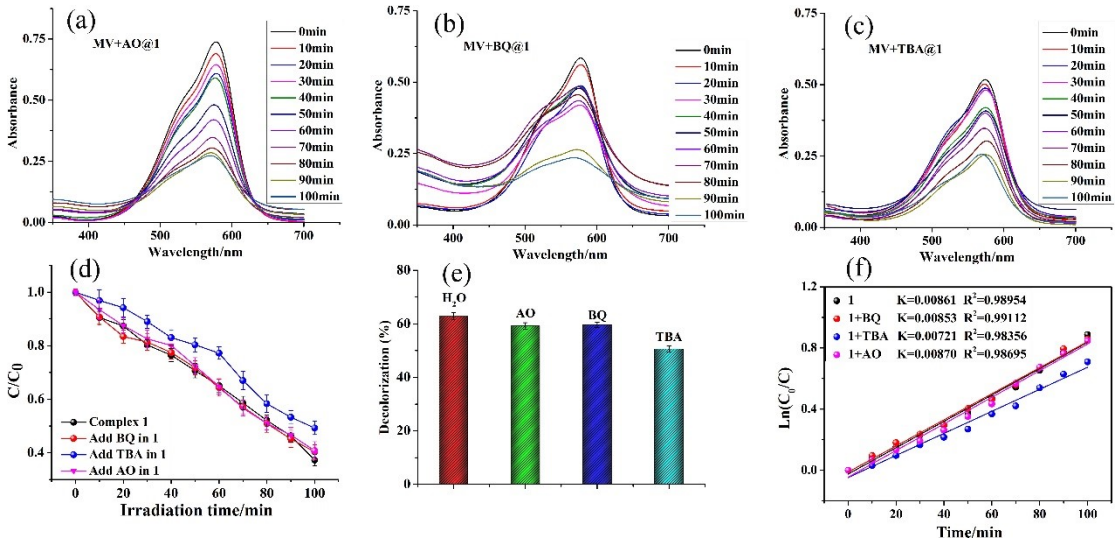

Fig. S4 (a)- (e) photodegradation of the MV solution in the different scavenger solutions in **1**; (f) linear-log plot as a function of deduced mechanism of the degradation of MV by **1.**

PXPD analysis.

The PXRD patterns for **CP 1** and **CP 2** are presented in Figure S4, The diffraction peaks of both simulated and experimental patterns are matching, thus indicating that the phase purity of compound CP1 is good. The differences of intensity may be owing

to the preferred orientation of the crystal samples.

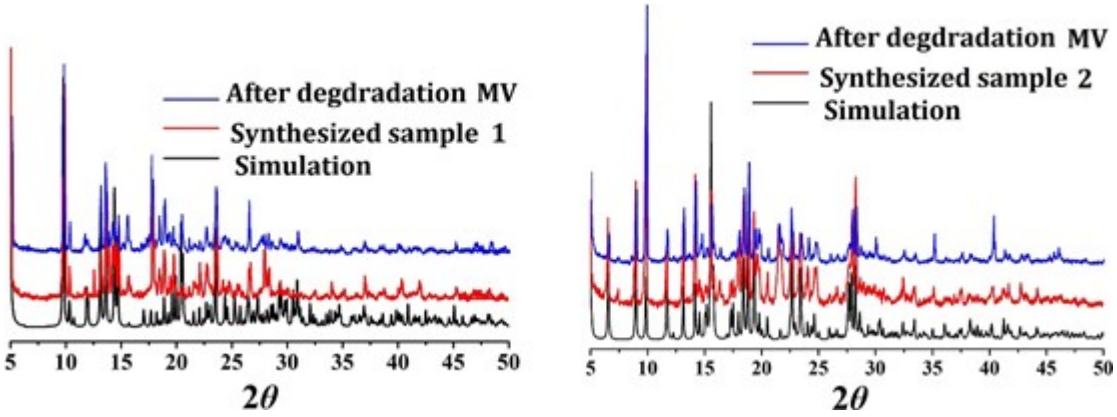

Fig. S5 PXRD plots for CPs **1** and **2**.

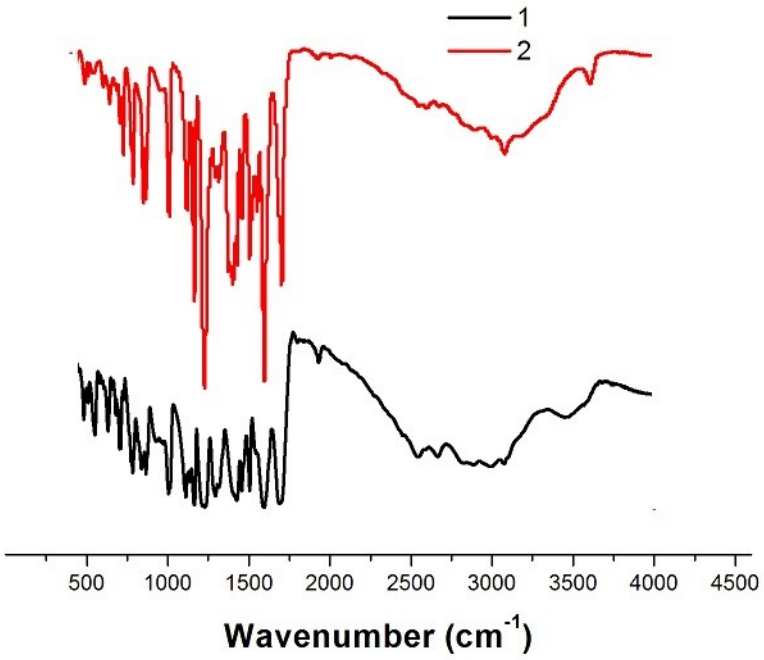

Fig. S6 FTIR spectra of CPs **1** and **2**.

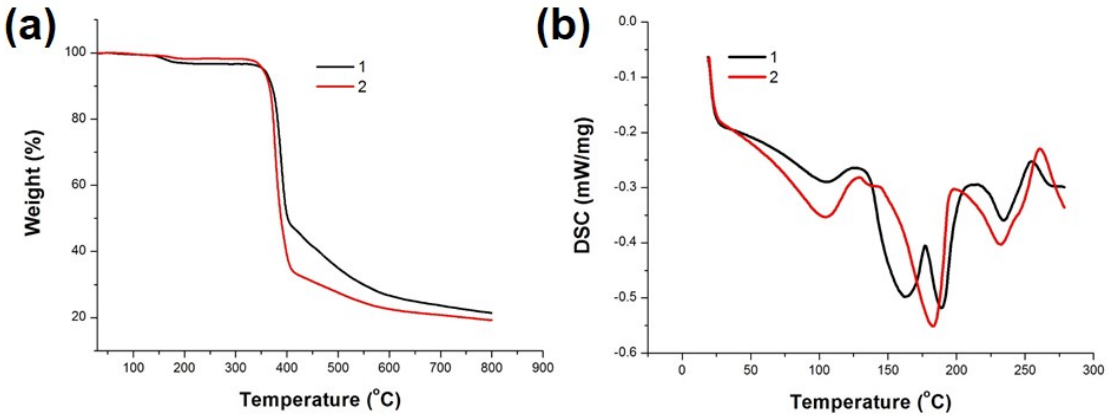

Fig. S7 (a) TGA and (b) DSC plots for **1** and **2**.

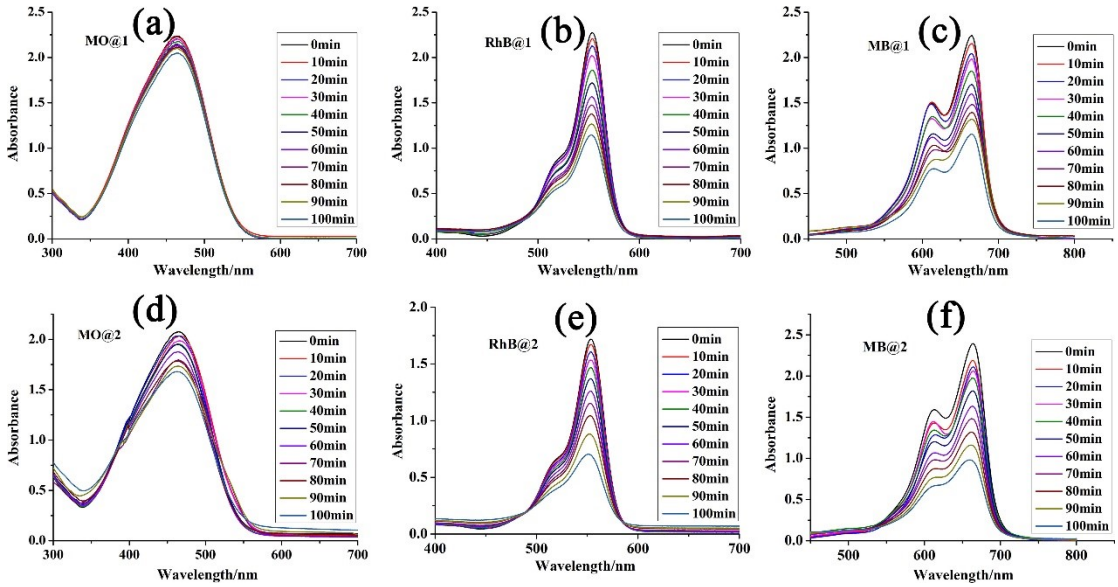

Fig. S8 Absorption spectra of the MO, Rh B and MB solutions during the decomposition reaction under UV irradiation for **1** and **2**, respectively.

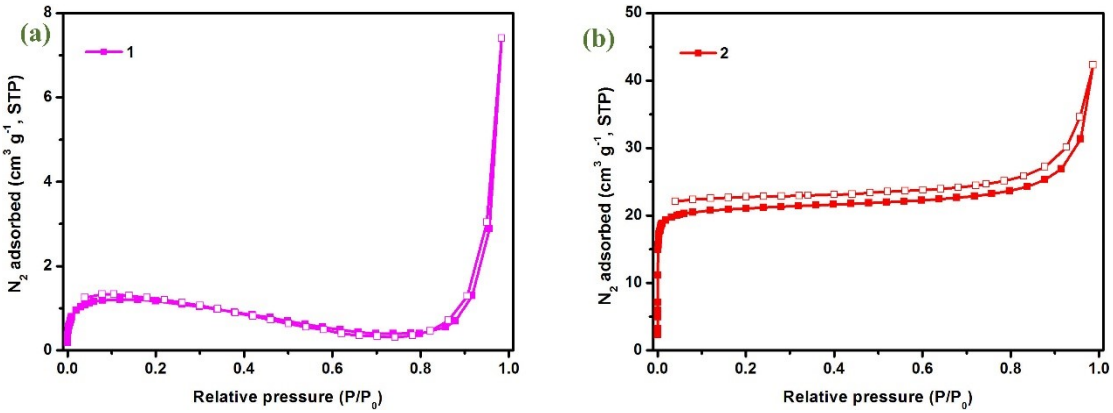

Fig. S9 BET surface area analyses for **1** and **2**

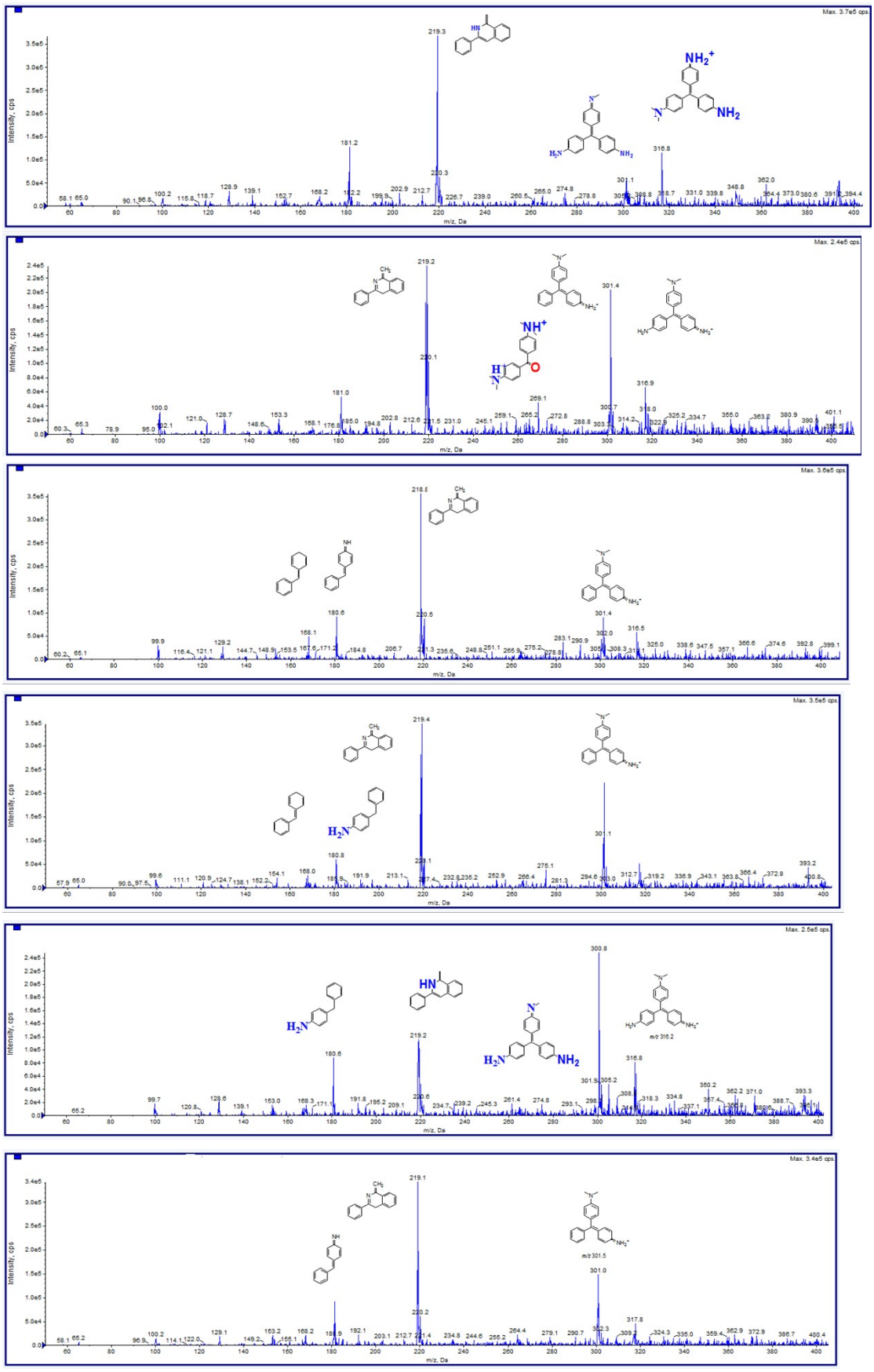

Fig. S10 Relative intensities of molecular fragments of **1** and **2** with their m/z value

Table S1. Crystallographic data and structure refinement details for Complexes 1-2

Parameter	**1**	**2**
Formula	$C_{54}H_{42}O_{24}Cd_3$	$C_{39}H_{26}N_2O_{11}Cd$
Formula weight	1412.07	811.03
Crystal system	Triclinic	Triclinic
Space group	*P-1*	*P-1*
Crystal Color	Colorless	Colorless
a, Å	7.9080(2)	6.1936(5)
b, Å	9.0612(2)	15.2015(12)
c, Å	18.6420(3)	18.8590(14)
α, °	95.133(2)	71.913(1)
β, °	100.853(2)	89.280(1)
γ, °	107.104(2)	89.947(2)
V, Å ^{3}	1238.88(5)	1687.7(2)
Z	1	2
ρ_{calcd}, g/cm^3	1.893	1.596
μ, mm^{-1}	11.032	0.716
F(000)	702	820
θ Range, deg	2.4-76.0	1.1-27.6
Reflection Collected	13015	10362
Independent reflections (R_{int})	0.039	0.030
Reflections with $I > 2\sigma(I)$	4652	5107
Number of parameters	369	485
R_1, wR_2 ($I > 2\sigma(I)$)*	0.0349, 0.0909	0.0501, 0.0995
R_1, wR_2 (all data)**	0.0365, 0.0946	0.0905, 0.1280

* $R = \sum(F_o - F_c)/\sum(F_o)$, ** $wR_2 = \{\sum[w(F_o^2 - F_c^2)^2]/\sum(F_o^2)^2\}^{1/2}$.

Table S2. Selected bond distances (Å) and angles (deg) for **1-2**

		1	
Cd(1)-O(1)	2.167(3)	Cd(1)-O(1W)#1	2.390(3)
Cd(1)-O(8)#1	2.334(2)	Cd(1)-O(1)#2	2.167(3)
Cd(1)-O(1W)#3	2.390(3)	Cd(1)-O(8)#3	2.334(2)
Cd(2)-O(1W)	2.347(3)	Cd(2)-O(2W)	2.224(4)
Cd(2)-O(9)	2.230(2)	Cd(2)-O(6)#4	2.336(2)
Cd(2)-O(2)#5	2.264(2)	Cd(2)-O(6)#6	2.301(2)
		2	
Cd(1)-O(1)	2.419(4)	Cd(1)-O(2)	2.495(3)
Cd(1)-O(10)	2.276(4)	Cd(1)-N(1)	2.348(4)
Cd(1)-N(2)	2.344(4)	Cd(1)-O(5)#1	2.674(4)
Cd(1)-O(6)#1	2.258(3)		

		1	
O(1)-Cd(1)-O(1W)#1	98.62(10)	O(1)-Cd(1)-O(8)#1	91.36(9)
O(1)-Cd(1)-O(1W)#3	81.38(10)	O(1)-Cd(1)-O(8)#3	88.64(9)
O(1W)#1-Cd(1)-O(8)#1	95.35(9)	O(1)#2-Cd(1)-O(1W)#1	81.38(10)
O(1W)#1-Cd(1)-O(8)#3	84.65(9)	O(1)#2-Cd(1)-O(8)#1	88.64(9)
O(1W)#3-Cd(1)-O(8)#3	95.35(9)	O(1)#2-Cd(1)-O(8)#3	91.36(9)
O(1W)-Cd(2)-O(2W)	177.20(10)	O(1W)-Cd(2)-O(9)	88.19(9)
O(1W)-Cd(2)-O(6)#4	97.17(8)	O(1W)-Cd(2)-O(2)#5	84.85(9)
O(1W)-Cd(2)-O(6)#6	85.20(8)	O(2W)-Cd(2)-O(9)	94.46(11)
O(2W)-Cd(2)-O(6)#4	83.97(11)	O(2)#5-Cd(2)-O(2W)	93.08(11)
O(2W)-Cd(2)-O(6)#6	92.64(10)	O(6)#6-Cd(2)-O(9)	158.36(9)
		2	
O(1)-Cd(1)-O(2)	52.42(11)	O(1)-Cd(1)-O(10)	110.35(14)
O(1)-Cd(1)-N(1)	122.25(11)	O(1)-Cd(1)-N(2)	92.26(13)
O(1)-Cd(1)-O(5)#1	141.10(11)	O(1)-Cd(1)-O(6)#1	89.94(12)
O(2)-Cd(1)-O(10)	82.32(12)	O(2)-Cd(1)-N(1)	83.64(12)
O(2)-Cd(1)-N(2)	113.43(12)	O(2)-Cd(1)-O(5)#1	163.25(11)
O(2)-Cd(1)-O(6)#1	134.76(11)	O(10)-Cd(1)-N(1)	96.14(14)
O(10)-Cd(1)-N(2)	157.38(15)	O(5)#1-Cd(1)-O(10)	82.50(13)
O(6)#1-Cd(1)-O(10)	90.51(13)	N(1)-Cd(1)-N(2)	70.90(14)
O(5)#1-Cd(1)-N(1)	91.00(13)	O(6)#1-Cd(1)-N(1)	144.60(13)
O(5)#1-Cd(1)-O(6)#1	52.37(12)	O(5)#1-Cd(1)-N(2)	79.37(13)

Symmetry Cddes: **For 1**: #1 = x, y, -1+z; #2 = 1-x, 2-y, -z; #3 = 1-x, 2-y, 1-z; #4 = -1+x, y, z; #5 = x, y, 1+z; #6 = 1-x, 1-y, 2-z. **For 2**: #1 = 1+x, -y, -1+z.