Supplementary Data:

^{1}H NMR ($CDCl_3$): 1.44 (t, 3H, CH_3; ^{2}J = 7.1 Hz), 4.48 (q, 2H, CH_2; ^{2}J = 7.1 Hz), 7.42 (m, 2H, m-CH), 7.82 (m, 1H, p-CH), 8.76 (m, 2H, o-CH).

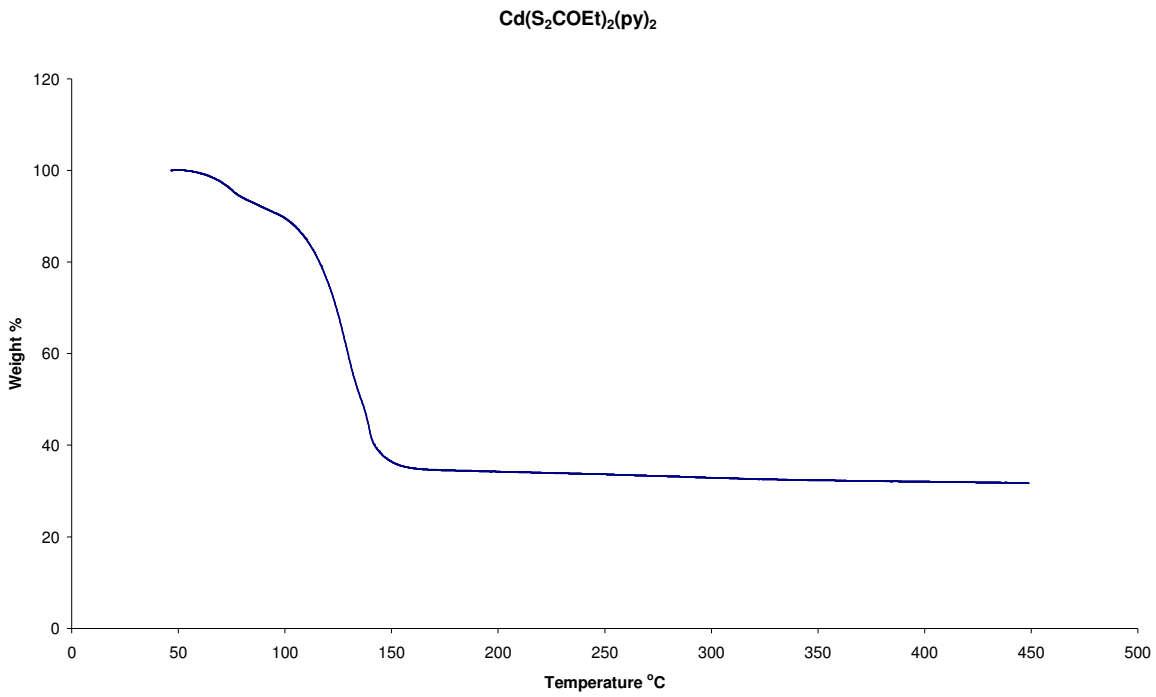
^{13}C ($CDCl_3$) : 14.2 (CH_3), 74.4 (CH_2), 125.0, 138.4, 149.6 (C_5H_5N), 231.5 (CO)

Micro Analysis: Found (Calc) for C16 H20 N2 S4 O2 Cd: C 37.3 (37.5), H 3.95 (3.93), N 5.34 (5.46)

Transient absorption spectroscopy measurements:

Transient absorption data were collected using a highly sensitive microsecond absorption systems under N_2. Data was collected using an excitation wavelength of 567 nm, with pulse width 0.6 ns and pulse energy density of 60-80 μJ cm-2 at 4 Hz repetition from a dye laser (Photon Technology International Inc. GL-301) pumped by a nitrogen laser (Photon Technology International Inc. GL-3300). Samples were probed using a quartz halogen lamp (Bentham, IL1) with a stabilized power supply (Bentham, 605). Probe light was detected by a silicon photodiode and the signal subsequently amplified and passed by electronic band-pass filters to improve signal to noise.

TGA of **1**


Cd(S2COEt)2(py)2
Weight %
Temperature °C
120
100
80
60
40
20
0
0
50
100
150
200
250
300
350
400
450
500

Crystallography:

Crystallographic data for the structural analysis (in CIF format) has been deposited with the Cambridge Crystallographic Data Center, CCDC no. 753046. Copies of this information may be obtained from the Director, CCDC, 12 Union Road, Cambridge, CB21EZ, UK (Fax: +44-1233-336033; e-mail: deposit@ccdc.cam.ac.uk or www.ccdc.cam.ac.uk).

Table 1. Crystal data and structure refinement for 1.

Identification code	h09kcm32
Empirical formula	C16 H20 Cd N2 O2 S4
Formula weight	512.98
Temperature	150(2) K
Crystal system	Monoclinic
Space group	P 2_1/c
Unit cell dimensions	a = 10.1957(3)Agst alpha = 90deg
	b = 13.1149(3)Agst beta = 104.450(2)deg
	c = 16.4045(3)Agst gamma = 90deg
Volume	2124.15(9) Agst@3
Z	4
Density (calculated)	1.604 Mg/m@3
Absorption coefficient	1.433 mm@-1
F(000)	1032
Crystal size	0.25 x 0.20 x 0.20 mm
Theta range for data collection	4.13 to 27.51 deg.
Index ranges	-13<=h<=13; -17<=k<=17; -21<=l<=21
Reflections collected	40865
Independent reflections	4864 [R(int) = 0.0936]
Reflections observed (>2sigma)	3647
Data Completeness	0.995
Max. and min. transmission	0.7626 and 0.7159
Refinement method	Full-matrix least-squares on F@2
Data / restraints / parameters	4864 / 0 / 255
Goodness-of-fit on F@2	1.055
Final R indices [I>2sigma(I)]	R~1 = 0.0335 wR~2 = 0.0660
R indices (all data)	R~1 = 0.0577 wR~2 = 0.0733
Largest diff. peak and hole	0.445 and -0.755 e.Agst@-3