Supporting Information

$Cs_2Cd(C_2H)_2(C_2)$: A Crystalline Acetylide with Bridging C_2 Units

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Table S1. Fractional atomic coordinates and isotropic displacement parameters ($Å^2$) of $Cs_2Cd(C_2H)_2(C_2)$.

a)	Wyckoff letter	*x*	*y*	*z*	U_{iso}
Cs1	4*c*	0	0.2392(3)	¼	0.049(2)
Cs2	4*a*	0	0	0	0.049(2)
Cd	4*c*	0	0.5182(3)	¼	0.032(2)
C1	8*f*	½	0.178(2)	0.058(2)	0.015(7)
C2	8*f*	½	0.114(2)	0.117(2)	0.015(7)
C3	8*g*	0.38287(4)	0.441(2)	¼	0.015(7)
H1	8*f*	½	0.226(7)	0.012(8)	0.015(7)

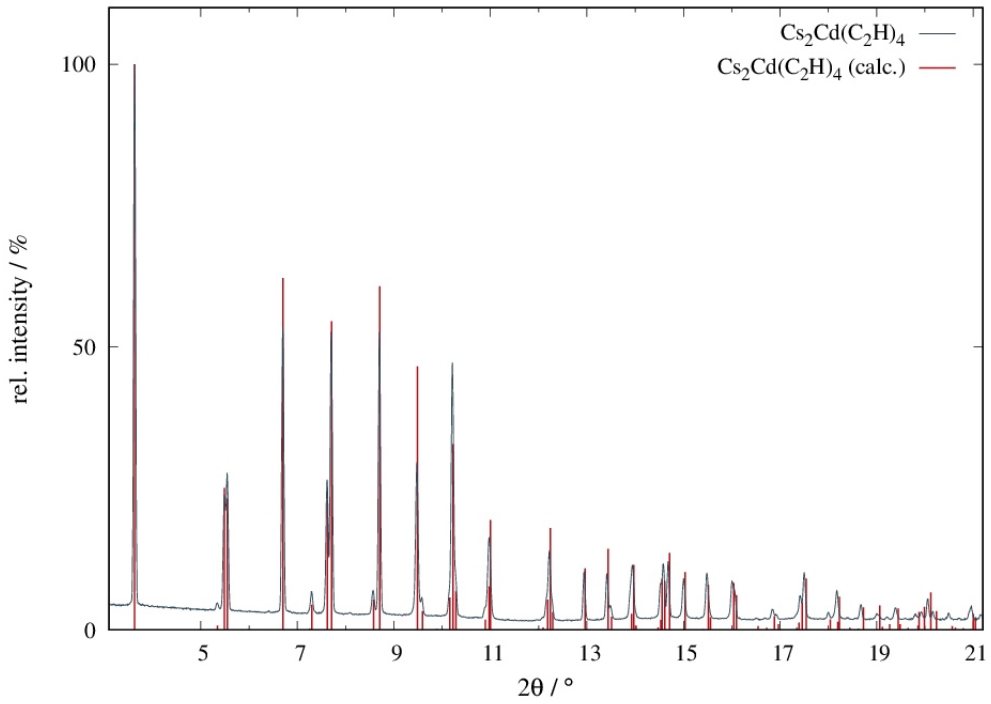

Figure S1. Synchrotron powder diffraction pattern of $Cs_2Cd(C_2H)_4$ (dark blue curve; DELTA beamline BL9, λ = 0.47674 Å, capillary: $\varnothing$ = 0.5 mm). For comparison the theoretical pattern calculated from the structure data given in the literature (*Z. Anorg. Allg. Chem.* **2004**, *630*, 337) is shown (red line diagram).

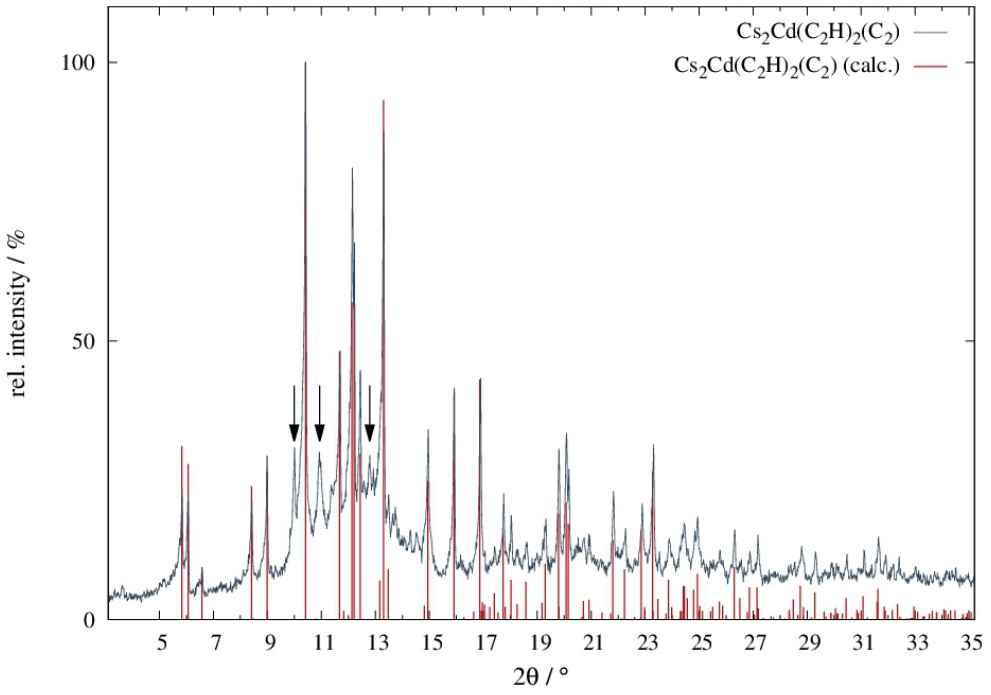

Figure S2. XRPD pattern of $Cs_2Cd(C_2H)_2(C_2)$ synthesized under ammonothermal conditions (dark blue curve, Stoe Stadi P, Mo-$K_{\alpha1}$, capillary: $\varnothing$ = 0.3 mm). For comparison the theoretical pattern calculated from its crystal structure is added as a red line diagram. The most intense impurity reflections are indicated with an arrow.

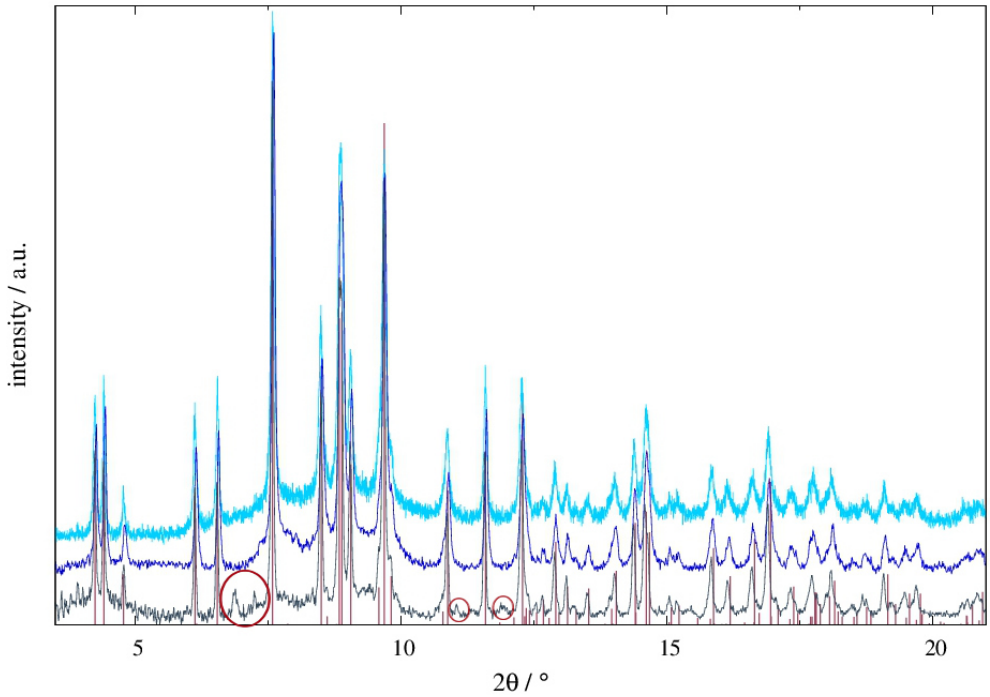

Figure S3. Comparison of different samples of $Cs_2Cd(C_2H)_2(C_2)$ measured with synchrotron radiation: ESRF, SNBL beamline (light blue curve); DELTA, BL9 beamline (grey and dark blue curve). All data were converted to the same wavelength (λ = 0.51655 Å). A theoretical pattern calculated from the crystal structure of $Cs_2Cd(C_2H)_2(C_2)$ is added as a red line diagram. Some additional reflections in the "DELTA sample" are indicated with red circles.