

## Electronic Supplementary Information

### Thermodynamics of Hybrid Manganese Formate Perovskites

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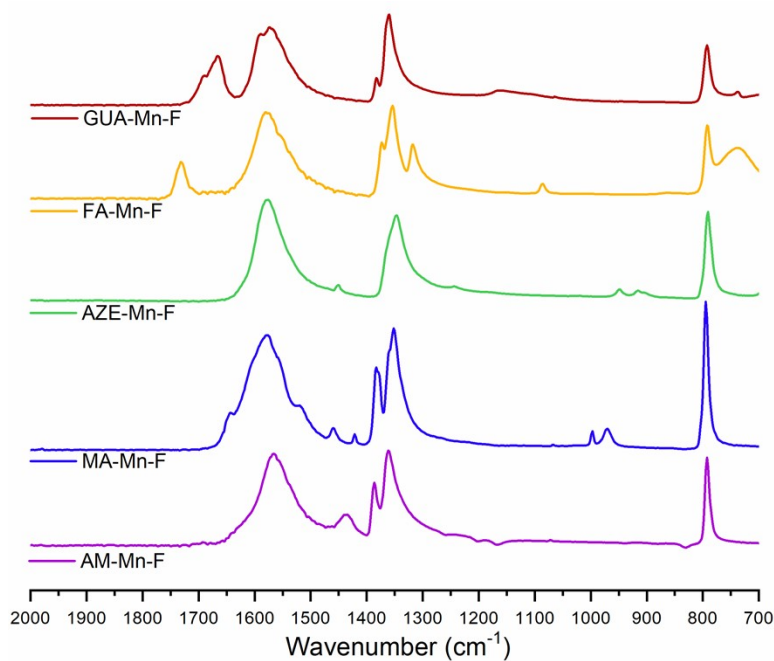


Fig. S1 FTIR patterns of all AH<sup>+</sup>-Mn-F samples

**Table S1** IR absorption bands (cm<sup>-1</sup>) and their assignments for all AH<sup>+</sup>-Mn-F samples

Assignments	AM-Mn-F	MA-Mn-F	AZE-Mn-F	FA-Mn-F	GUA-Mn-F
$\delta_{as}(\text{NH}_2)$				1732 (s)	1689 (sh)
		1640 (sh)			1666 (s)
$\nu_4$ OCO stretch, asym	1566 (s)	1577 (s)	1576 (s)	1580 (s)	1589 (sh)
		1520 (sh)			1574 (s)
$\nu(-\text{CH}_2-)$		1460 (w)	1450 (w)		
$\nu_4(\text{NH}_4^+)$	1435 (m)				
$\nu_5$ OCO deformation, asym	1387 (s)	1382 (s)		1373 (sh)	1382 (m)
$\nu_2$ OCO stretch, sym	1362 (s)	1352 (s)	1346 (s)	1354 (s)	1360 (s)
$\rho(\text{NH}_2)$				1317 (s)	
$\nu(\text{C}-\text{N})$			1245 (vw)		1163 (w)
$\rho(\text{NH}_2)$				1086 (s)	
$\nu_6$ out-of-plane deformation		970 (w)	950 (w)		
			916 (w)		
$\nu_3$ OCO deformation, sym	793 (s)	795 (s)	791 (s)	793 (s)	793 (s)
$\omega(\text{NH}_2)$				736 (b)	
$\rho_r(\text{NH}_2)$					737 (w)