High solubility crystalline hydrates of Na and K Furosemide salts†

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Electronic Supplementary Information†

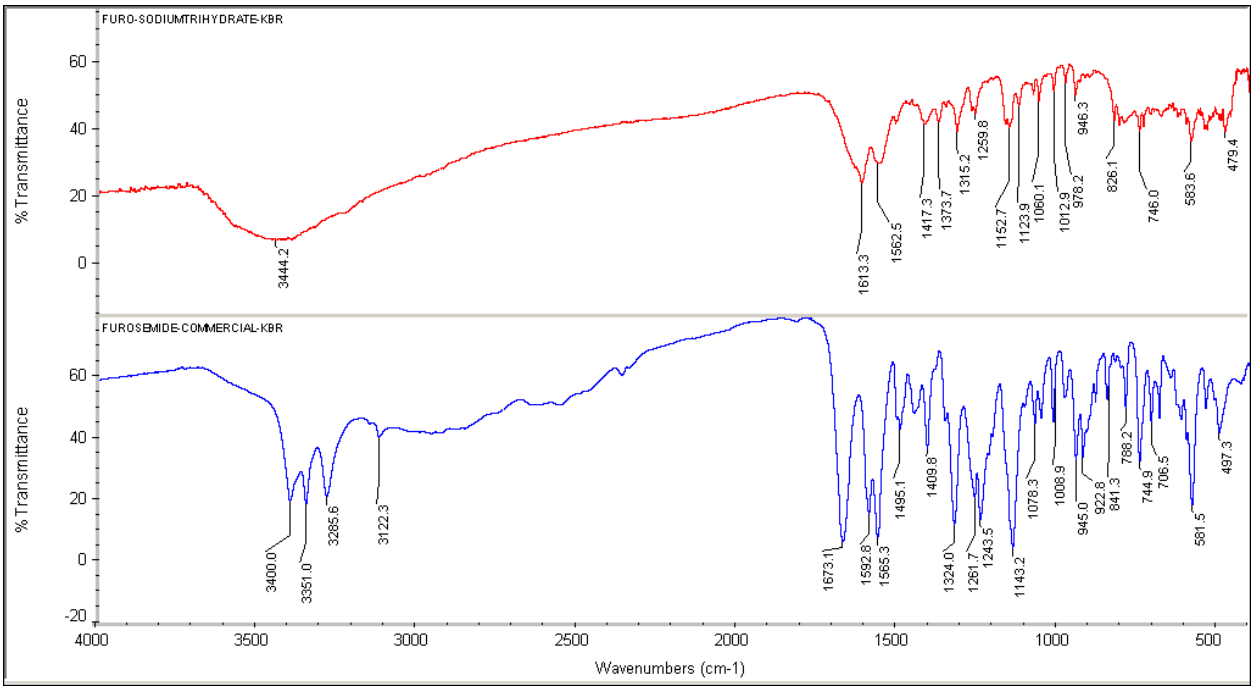


Fig. S1 IR spectrum of furo-Na-trihydrate and furosemide.

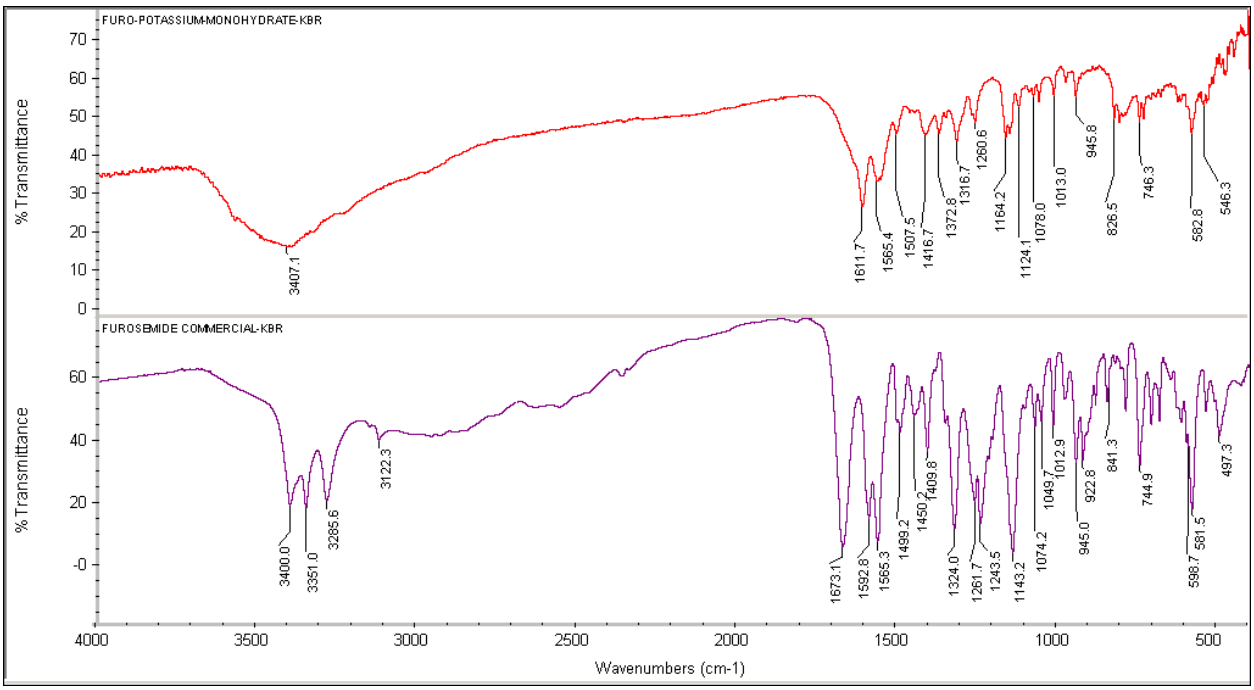
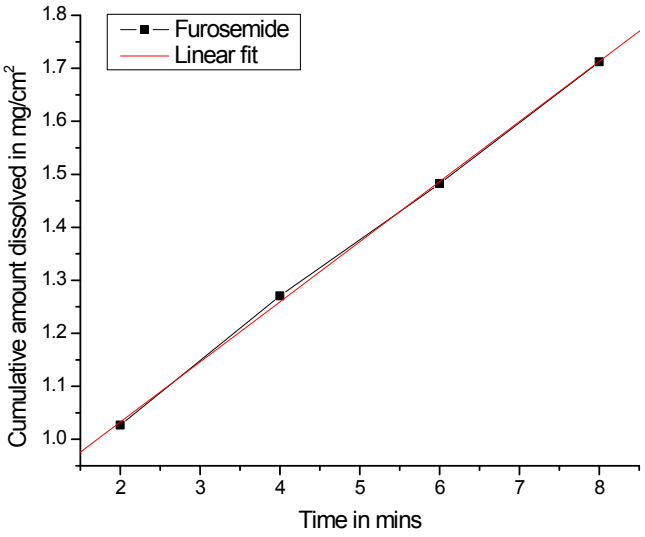
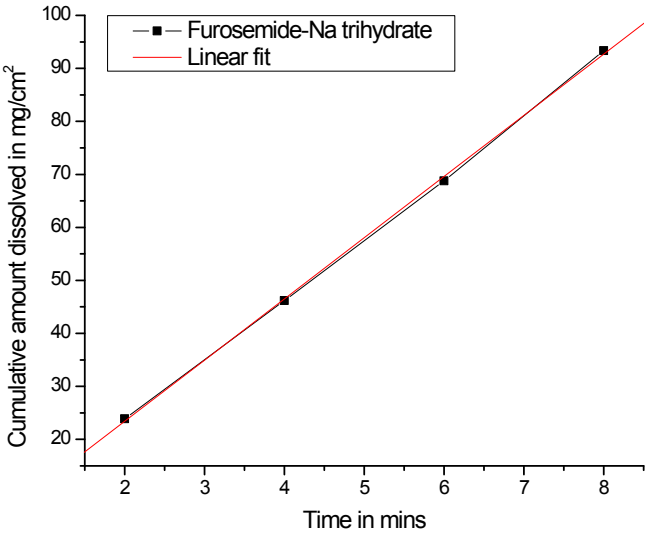


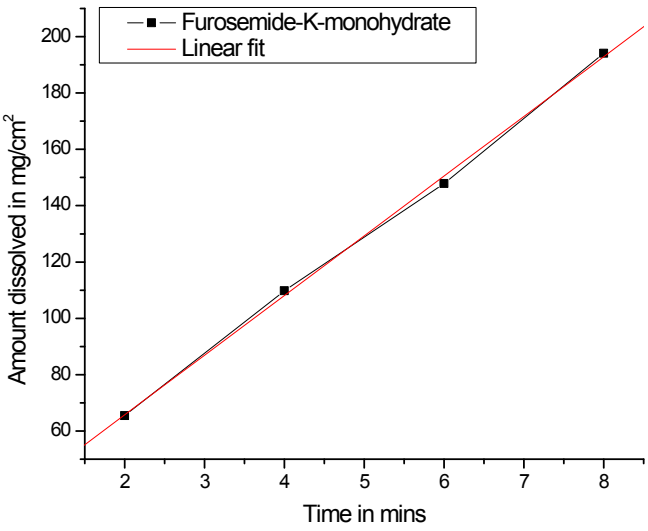
Fig. S2 IR spectrum of furo-K-monohydrate and furosemide.



(a)

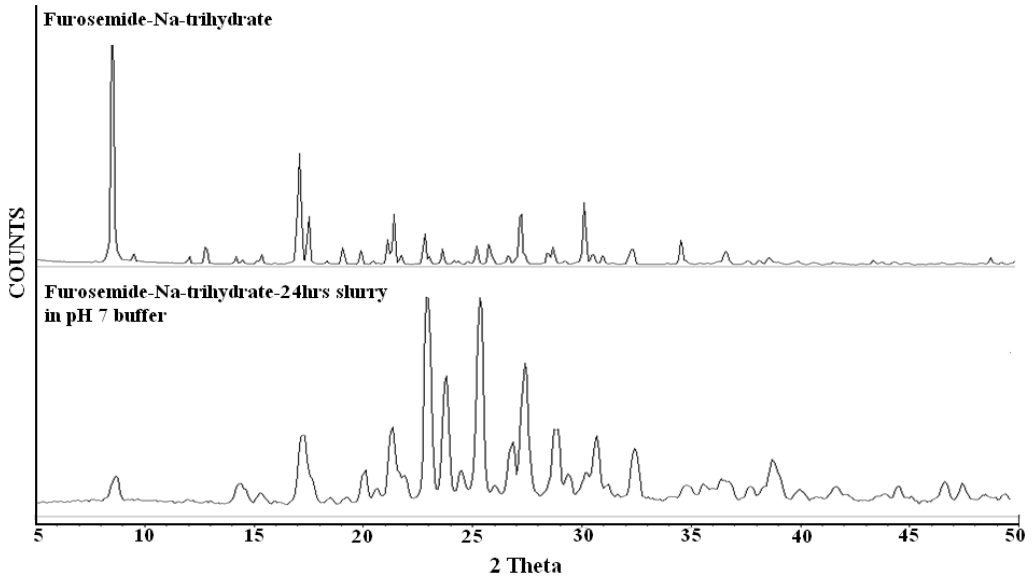


(b)

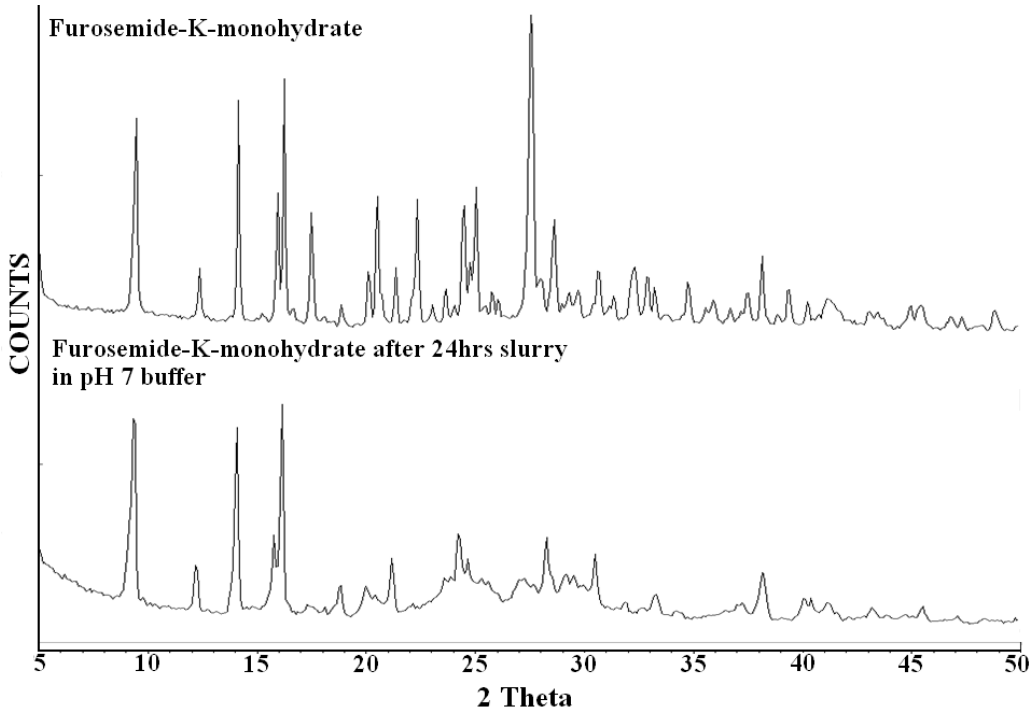


(c)

Fig. S3 Linear fit dissolution data points used to calculate IDR of (a) furosemide, (b) Furosemide-Na-trihydrate and (c) Furosemide-K-monohydrate.

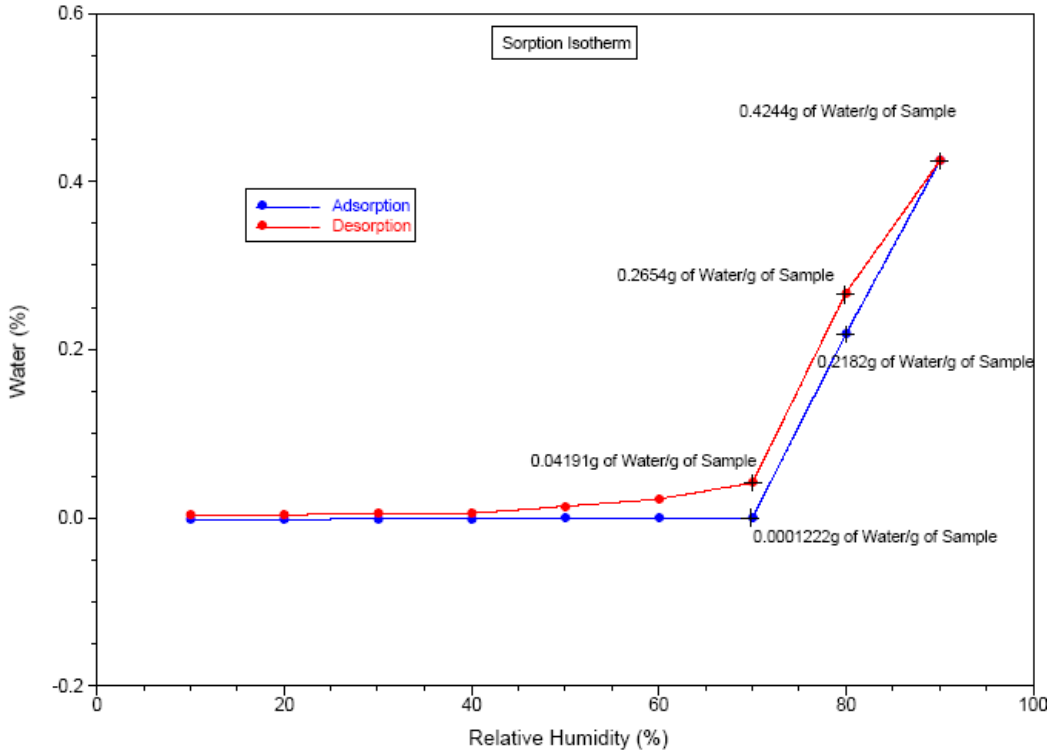


(a)

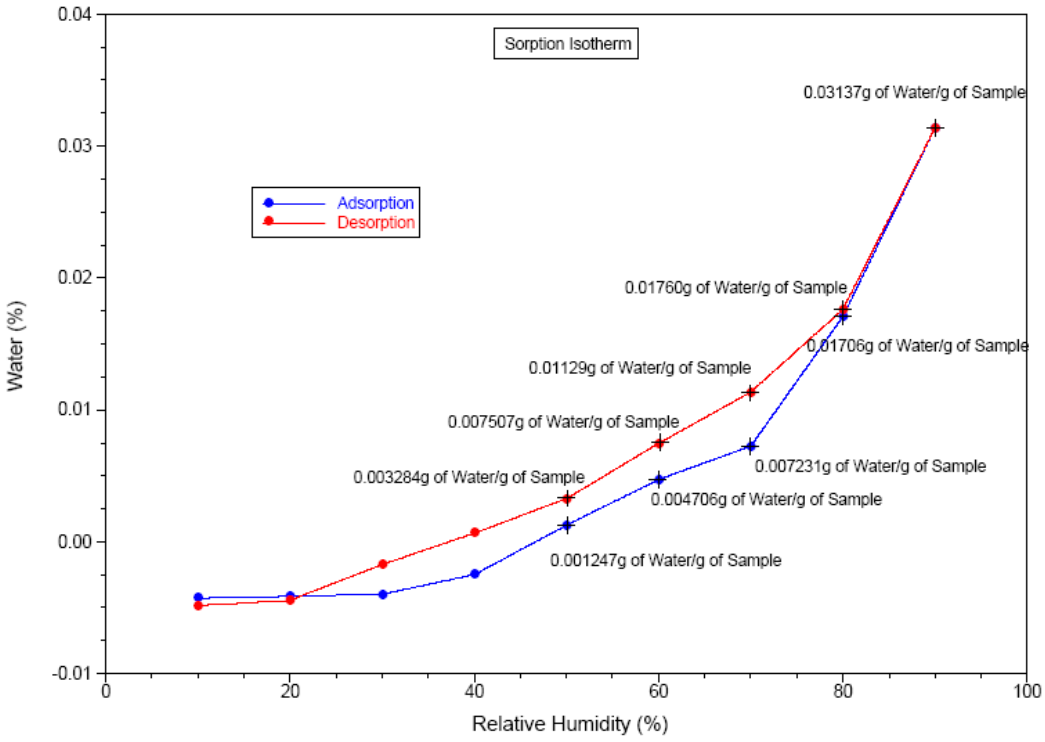


(b)

Fig. S4 PXRDs of furosemide salts before and after intrinsic dissolution/equilibrium solubility experiment: (a) Furo-Na-trihydrate, (b) Furo-K-monohydrate. Both salts were stable in the aqueous slurry conditions.

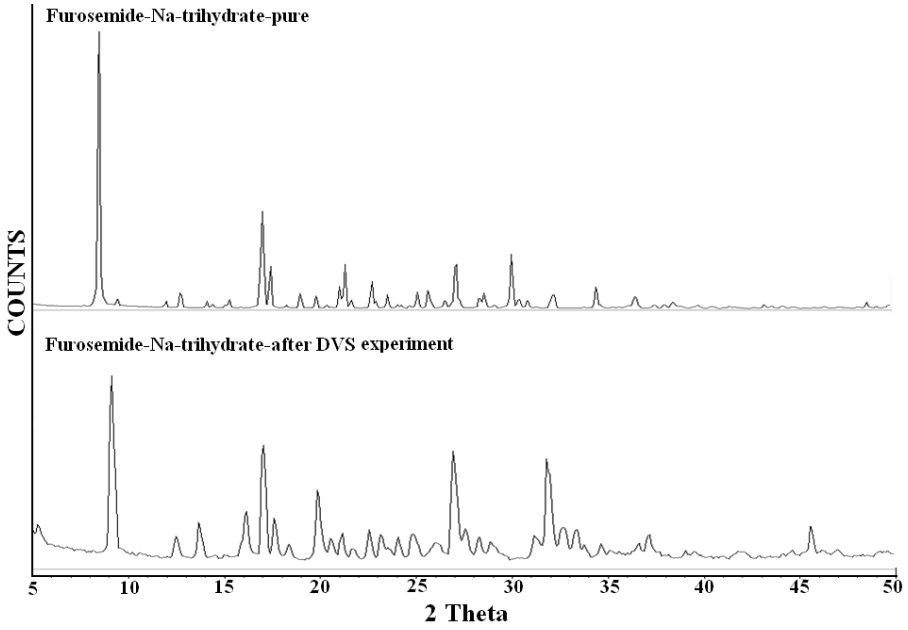

Sorption Isotherm
Adsorption
Desorption
0.4244g of Water/g of Sample
0.2654g of Water/g of Sample
0.2182g of Water/g of Sample
0.04191g of Water/g of Sample
0.0001222g of Water/g of Sample
Water (%)
Relative Humidity (%)
0.6
0.4
0.2
0.0
-0.2
0
20
40
60
80
100

(a)

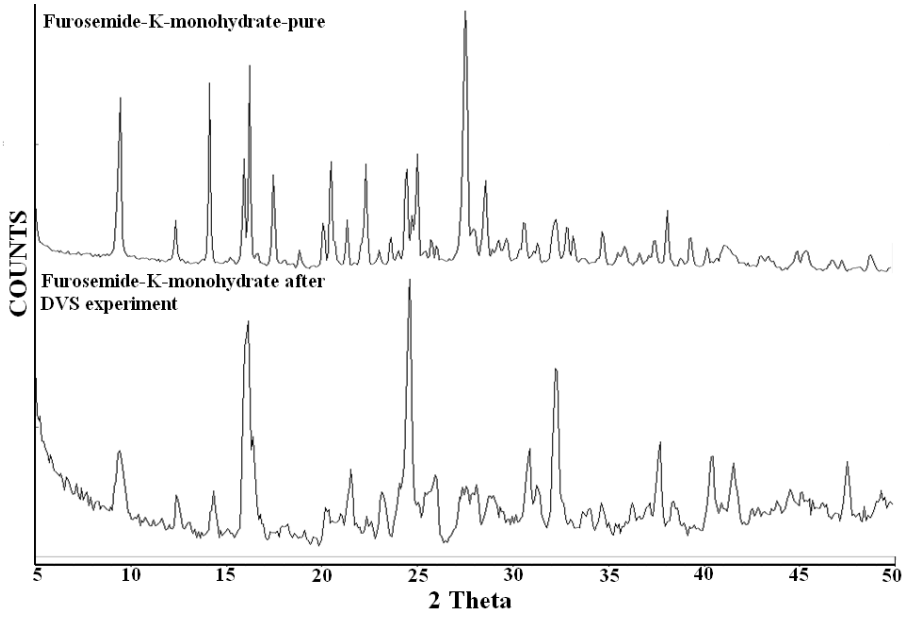

Sorption Isotherm
Adsorption
Desorption
0.03137g of Water/g of Sample
0.01760g of Water/g of Sample
0.01706g of Water/g of Sample
0.01129g of Water/g of Sample
0.007507g of Water/g of Sample
0.007231g of Water/g of Sample
0.003284g of Water/g of Sample
0.004706g of Water/g of Sample
0.001247g of Water/g of Sample
Water (%)
Relative Humidity (%)
0.04
0.03
0.02
0.01
0.00
-0.01
0
20
40
60
80
100

(b)

Fig. S5 (a) Furo-Na-trihydrate showed water uptake of 42.4% at 90% RH and upon desorption did not retain any water in the crystalline lattice. (b) Furo-K-monohydrate showed water uptake of 3.1% at 90% RH and upon desorption did not retain any water in the crystal lattice.



(a)



(b)

Fig. S6 PXRD of (a) Furo-Na-trihydrate and (b) Furo-K-monohydrate at the end of DVS experiment. There appears to be no phase change but an overall broadening of peaks is observed after exposure to high humidity and temperature for about 4 h (sample size is 4-5 mg for the post-DVS plot).