

Supplementary Material

Testing of the bioremediation on model substrates for complex refinery contaminants arising from accidental or deliberate facility damage

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Table S1. The numbers of microorganisms recovered (CFU g⁻¹) at the start and after bioremediation.

Parameter	C-0	C-6	T-0	T-6
CH	10000	3000	600000	400000
YM	6000	200	50000	4000
AN	6000	1000	40000	30000
HD	6000	2000	60000	200000

CFU, colony forming units; CH, chemoorganoheterotrophs; YM, yeasts and molds; AN, anaerobic chemoorganoheterotrophs; HD, hydrocarbon degraders; C-0 and C-6, control samples at the beginning and at the end of study, T-0 and T-6, test samples at the beginning and at the end of study.

Table S2. Percentages of cobalt and molybdenum in different forms, sequentially extracted from the samples, and calculated as the percentage of total metal determined by the melting procedure.

Fraction	C-0		C-6		T-0		T-6	
	Co	Mo	Co	Mo	Co	Mo	Co	Mo
Exchangeable (%)	54	88	8	20	13	13	8	8
Bound to carbonates (%)	30	4	18	3	21	3	18	3
Bound to Fe-Mn oxides (%)	8	3	3	2	15	4	14	22
Bound to organic matter (%)	1	3	8	22	8	35	6	16
Residual (%)	7	1	64	52	48	24	53	51
Melting procedure (g kg ⁻¹)	1.97	7.21	2.190	7.493	2.015	7.352	2.130	7.385

Table S3. Amount of cobalt and molybdenum (g kg⁻¹) determined by the Melish procedure and by leaching.

Procedure	C-0		C-6		T-0		T-6	
	Co	Mo	Co	Mo	Co	Mo	Co	Mo
Mehlich procedure	0.120	0.052	0.359	0.219	0.236	0.140	0.349	0.220
Leaching	0.733	3.839	0.016	0.708	0.150	0.145	0.040	0.064

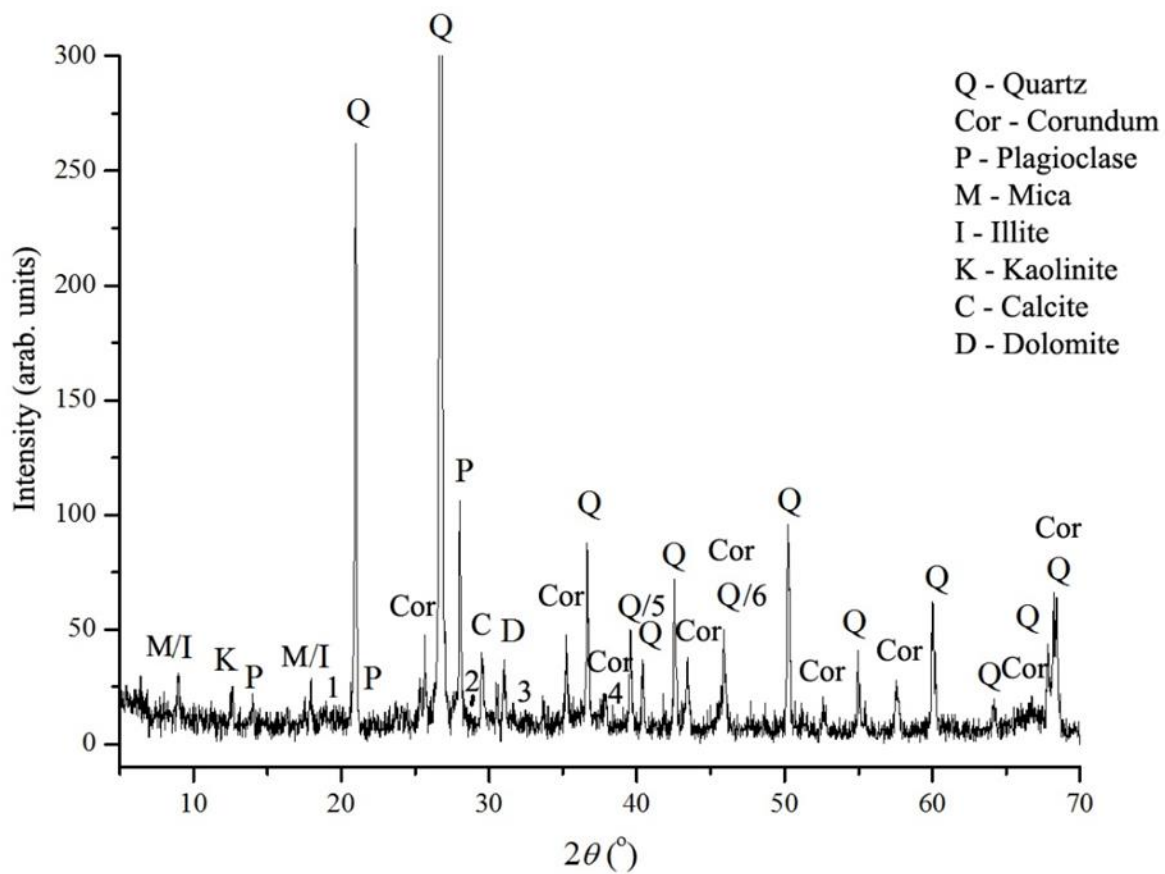


Fig. S1. Diffractogram of sand and HDS catalyst mixture.