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Supplementary material to

THE INFLUENCE OF MOISTURE CONTENT ON DRILLED CUTTINGS' PROPERTIES OF BED PACKING AND FLOWABILITY

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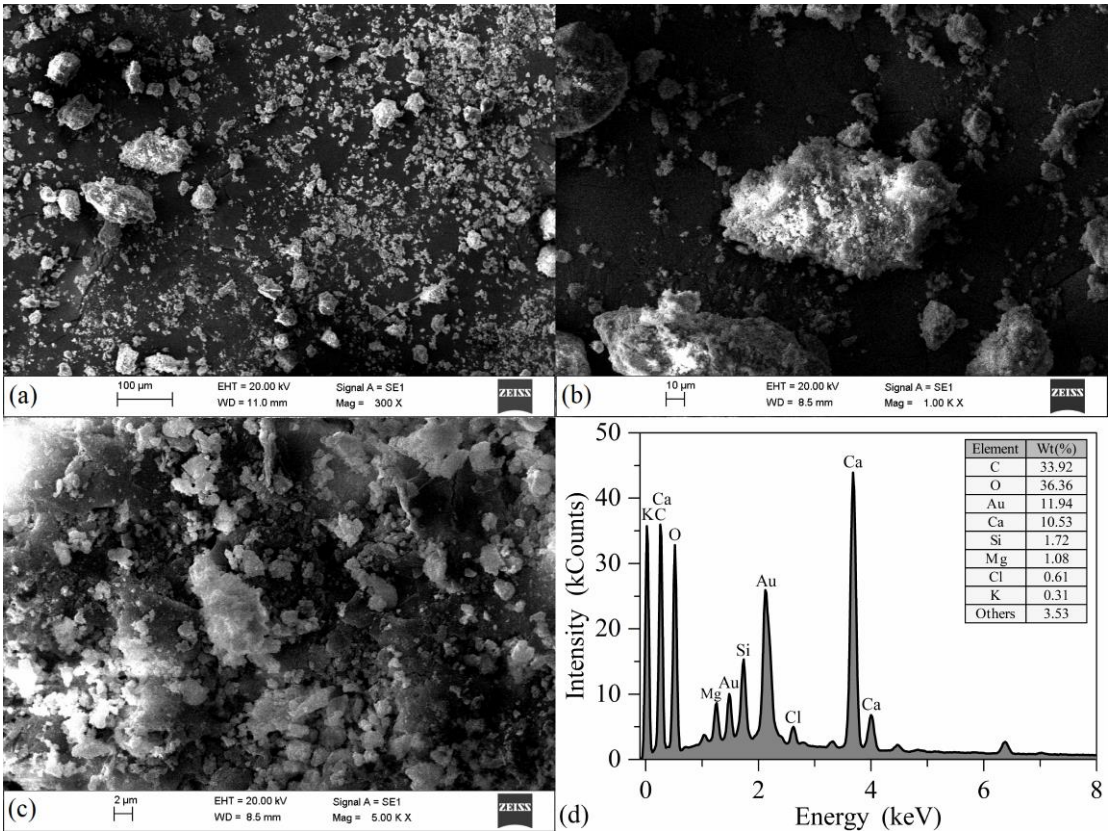

Figure S1. SEM images at magnifications of (a) 300x; (b)1000x; (c) 5000x; and (d) EDS results.

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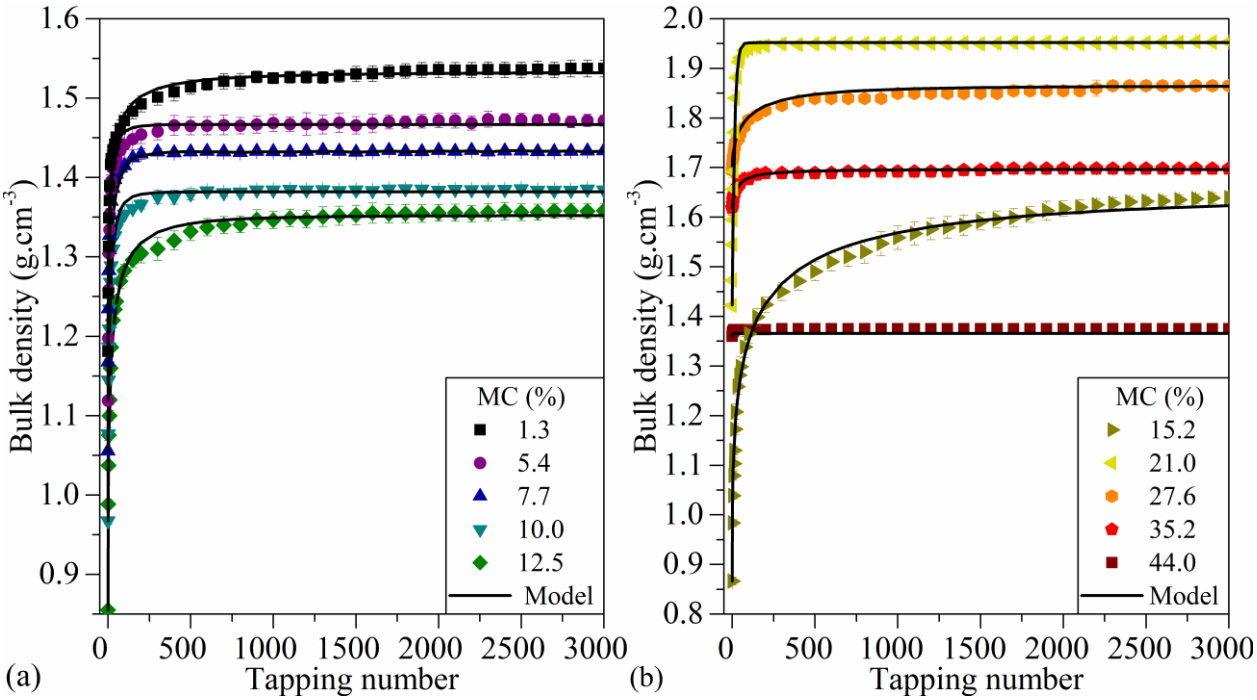

Figure S2. Compaction curves for drilling cuttings of different moisture contents.

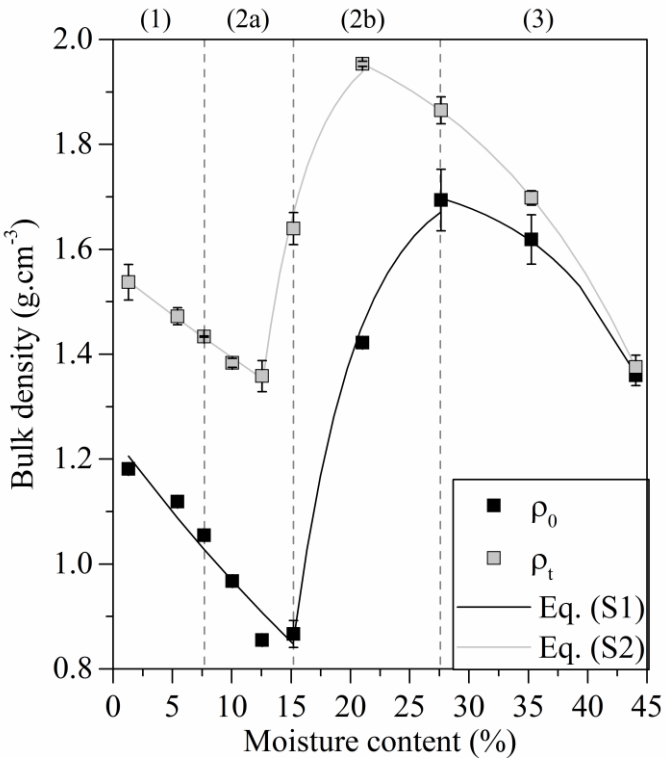

Figure S3. Effect of moisture content on loose (ρ_0) and tapped (ρ_t) bulk densities of drilling cuttings.

Eqs. (S1) and (S2) were fitted to data to respectively describe ρ_0 and ρ_t in the function of *MC*, obtaining the respective high values of R^2 of 0.994 and 0.999.

$$\rho_0 = \begin{cases} 1.40x10^{0}e^{-0.02MC} - 0.15 & for \quad MC < 15.2\% \\ -1.58x10^{1}e^{-0.19MC} + 1.76 & for \quad 15.2\% \le MC < 27.6\% \\ -2.17x10^{-3}e^{0.12MC} + 1.75 & for \quad MC \ge 27.6\% \end{cases} \quad \text{(S1)}$$

$$\rho_t = \begin{cases} 1.55x10^{0}e^{-0.01MC} + 0.01 & for \quad MC < 12.5\% \\ -1.58x10^{1}e^{-0.25MC} + 2.02 & for \quad 12.5\% \le MC < 21.0\% \\ -4.35x10^{-2}e^{0.06MC} + 2.12 & for \quad MC \ge 21.0\% \end{cases} \quad \text{(S2)}$$

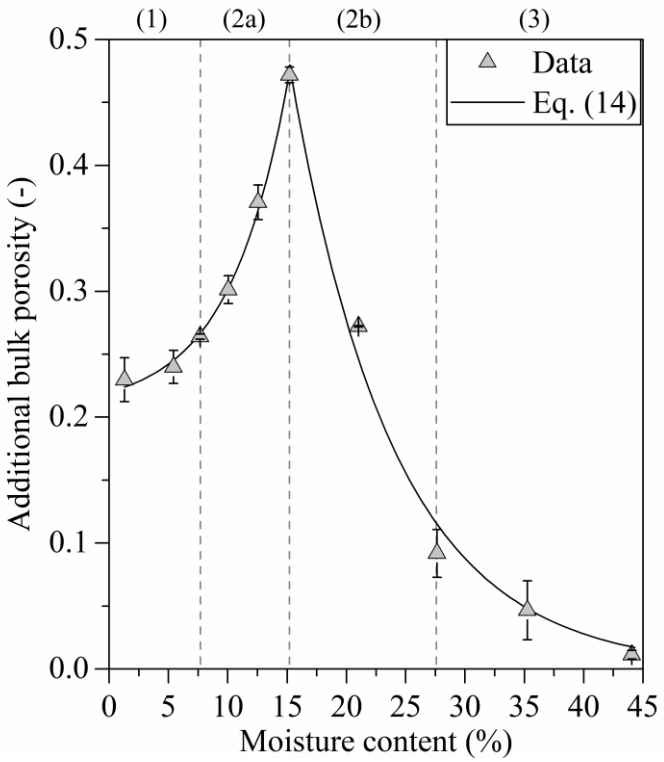

Figure S4. Effect of moisture content on the additional bulk porosity (ε_{add}) of drilling cuttings.

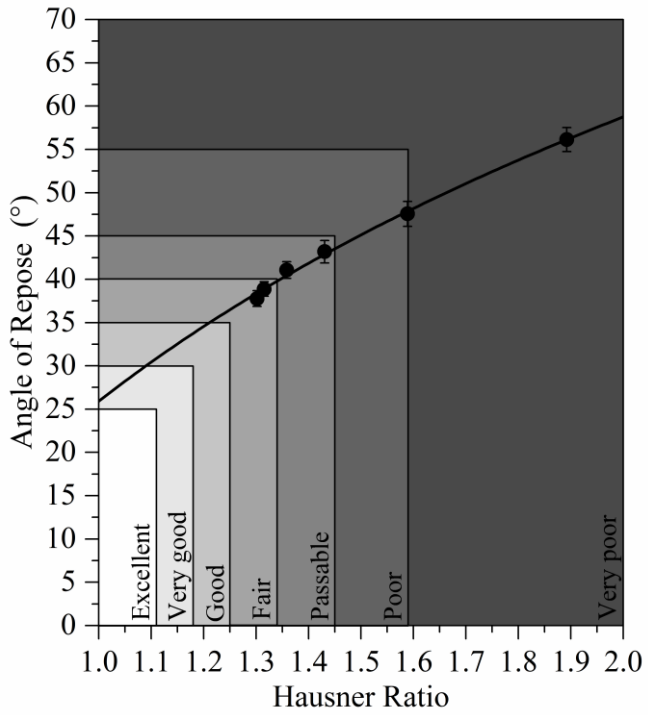

Figure S5. Correlation between Hausner ratio and angle of repose for different MCs of drilling cuttings.

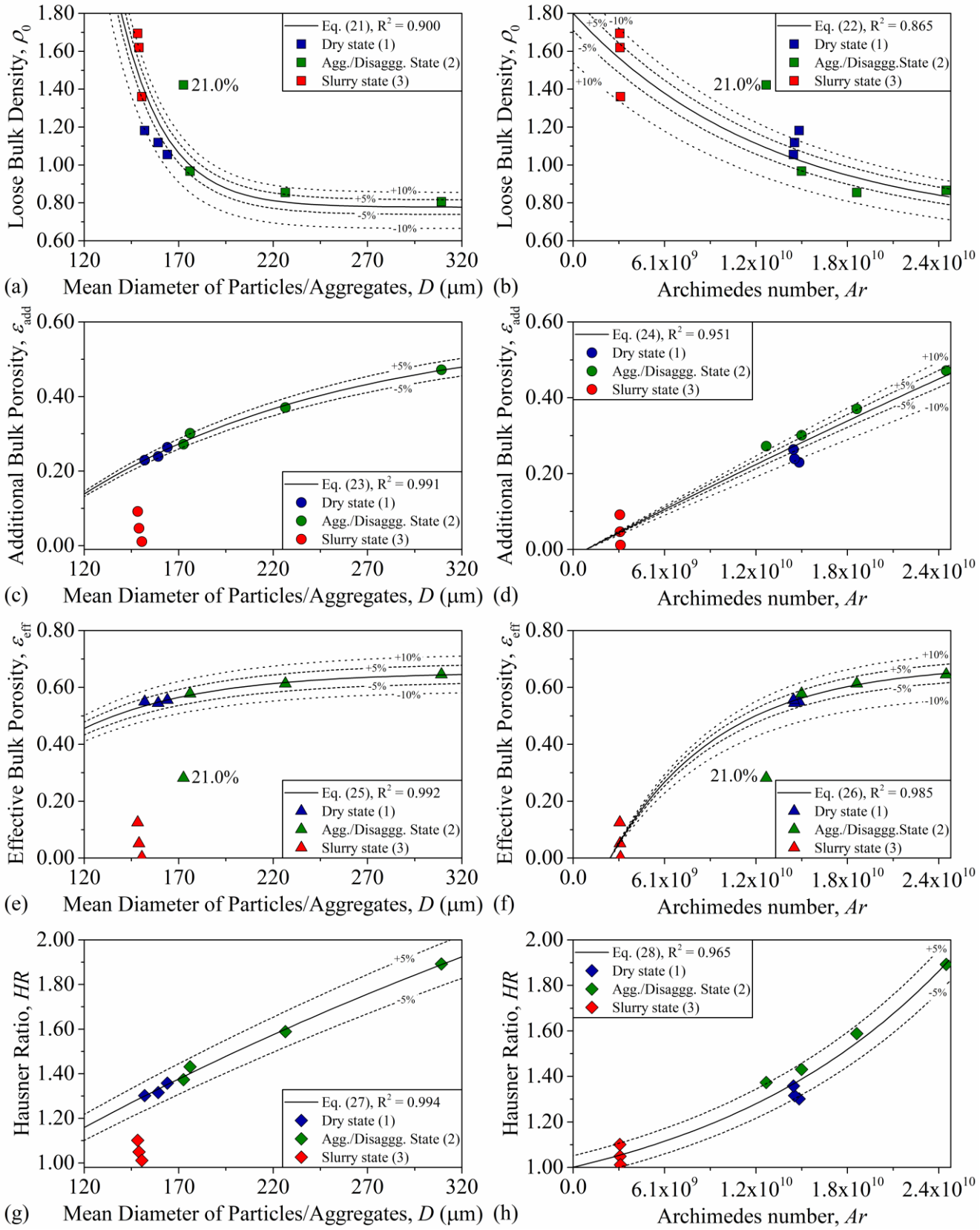

Figure S6. Bed packing and flowability properties correlations for different MCs of drilling cuttings.

Table S1. Characteristics of the dry drilling cuttings.

Geldart group		B
	φ	0.77 ± 0.01
	D_{Sauter} (µm)	161.73 ± 20.56
	ρ_a (g.cm^{-3})	2.6032 ± 0.0145
	ρ_r (g.cm^{-3})	2.6990 ± 0.0061
	ε_p	0.0355
Content	C_w (% g.g^{-1})	0.45 ± 0.08
	C_o (% g.g^{-1})	0.86 ± 0.22
	C_s (% g.g^{-1})	98.70 ± 0.24
RRB model	x_0 (µm)	615.96
	n	1.09
	R^2	0.9954
	RMSE	0.0260

Table S2. Oil (C_o), water (C_w), and solids (C_s) contents of drilled cuttings giving to the moisture content (MC).

MC (%)	C_w (% g.g^{-1})	C_o (% g.g^{-1})	C_s (% g.g^{-1})
1.3	0.4	0.86	98.7
5.4	4.6	0.82	94.6
7.7	6.9	0.80	92.3
10.0	9.3	0.78	90.0
12.5	11.8	0.76	87.5
15.2	14.5	0.73	84.8
21.0	20.3	0.68	79.0
27.6	27.0	0.63	72.4
35.2	34.7	0.56	64.8
44.0	43.6	0.48	56.0

Table S3. Fitted parameters of the KWW Model for different moisture contents of drilling cuttings.

MC (%)	ρ_∞ (g.cm^{-3})	ρ_t (g.cm^{-3})	ρ_0 (g.cm^{-3})	β	τ	R^2	*p-value*
1.3	1.533	1.537 ± 0.034	1.181 ± 0.005	0.393	20.004	0.982	0.631
5.4	1.467	1.472 ± 0.016	1.119 ± 0.008	0.583	10.383	0.984	0.406
7.7	1.433	1.434 ± 0.001	1.055 ± 0.006	0.608	7.632	0.994	0.502
10.0	1.382	1.383 ± 0.008	0.967 ± 0.011	0.552	10.837	0.994	0.498
12.5	1.352	1.358 ± 0.030	0.855 ± 0.006	0.426	19.759	0.994	0.645
15.2	1.651	1.639 ± 0.030	0.866 ± 0.026	0.372	111.905	0.992	0.174
21.0	1.949	1.953 ± 0.005	1.422 ± 0.002	1.040	13.970	0.997	0.195
27.6	1.865	1.865 ± 0.026	1.694 ± 0.059	0.521	100.222	0.945	0.972
35.2	1.696	1.698 ± 0.014	1.619 ± 0.047	0.680	55.326	0.978	0.343
44.0	1.375	1.375 ± 0.023	1.360 ± 0.020	0.843	5.024	0.919	0.919