

SUPPLEMENTARY MATERIAL TO

Study of Raw and Modified Carbon Molecular Sieves Using Waste Engine Oil for Carbon Dioxide and Methane Adsorption

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The results of BET analysis indicate that the acid-treated CMS_(A-3) with a granulation size of 600-1180 microns has more surface area, volume and pore size as compared to non-granulated, non-acid-treated, unmodified CMS_(R). The highest amounts of carbon dioxide and methane adsorption were obtained for CMS_(A-3) sample (0.925 CO₂/g adsorbent and 0.353 mmol CH₄/g adsorbent for carbon dioxide and methane, respectively).

Table VI. The results of the effects of modifying the adsorbent on the capacity of carbon dioxide and methane adsorption

CO ₂			CH ₄		
CMS _(A-2-T)	CMS _(A-2-K)	CMS _(A-2)	CMS _(A-2-T)	CMS _(A-2-K)	CMS _(A-2)
0.381	0.477	0.639	0.114	0.191	0.343
CMS _(A-3-K)	CMS _(A-3-T)	CMS _(A-3)	CMS _(A-3-K)	CMS _(A-3-T)	CMS _(A-3)
0.610	0.629	0.925	0.248	0.343	0.353
CMS _(R-2-K)	CMS _(R-2-T)	CMS _(R-2)	CMS _(R-2-K)	CMS _(R-2-T)	CMS _(R-2)
0.532	0.534	0.620	0.114	0.165	0.340
CMS _(R-3-K)	CMS _(R-3-T)	CMS _(R-3)	CMS _(R-3-K)	CMS _(R-3-T)	CMS _(R-3)
0.410	0.524	0.600	0.095	0.162	0.276

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