

## Effect of moisture in aggregate on adhesive properties of warm-mix asphalt

<b>Publons ID</b>	35401733
<b>Wos ID</b>	WOS:000451104900111
<b>Doi</b>	10.1016/j.conbuildmat.2018.08.208
<b>Title</b>	Effect of moisture in aggregate on adhesive properties of warm-mix asphalt
<b>First Author</b>	Yang, Shih-Hsien; Rachman, Firmansyah; Susanto, Hery Awan;
<b>Last Author</b>	
<b>Authors</b>	Yang, SH; Rachman, F; Susanto, HA;
<b>Publish Date</b>	NOV 30 2018
<b>Journal Name</b>	CONSTRUCTION AND BUILDING MATERIALS
<b>Citation</b>	19
<b>Abstract</b>	<p>Warm-mix asphalt (WMA) is one technology that has been found to have potential in minimizing the environmental harm caused by road construction activities. Its low mixing and compacting temperatures have opened great opportunities for more sustainable development. However, because WMA is mixed at low temperatures, the drying process of the aggregate may fail to dry the WMA completely. The binder aggregate adhesion property can be damaged by moisture remaining from incomplete drying. The present study investigated the effects of aggregate moisture on the binder-aggregate interfacial characteristics of WMA by evaluating its surface free energy and adhesive bond strength. The results showed that for the Pen 60-70 binder type, the aggregate AG in general showed the higher bond energy and aggregate SD showed the lowest bond energy among three aggregate types. Also, the bond energy diminishes with increasing aggregate moisture contents but the percent drops in bond energy is less when WMA additives was included. For the PM binder, SL aggregate group showed the highest bond energy and SD aggregate group showed the lowest bond energy. For the work of adhesion, the results showed that with aggregate with 10% moisture contents has destructive effects on the work of adhesion which may decrease to 50% compare to dry aggregate condition. Finally, the four quadrant diagrams can be used to combine two distinct property of the bond energy and the work of adhesion as the hybrid performance indicator to rank the effect of moist aggregate to the adhesion properties at binder-aggregate interface. (C) 2018 Elsevier Ltd. All rights reserved.</p>
<b>Publish Type</b>	Journal
<b>Publish Year</b>	2018
<b>Page Begin</b>	1295
<b>Page End</b>	1307
<b>Issn</b>	0950-0618
<b>Eissn</b>	1879-0526
<b>Url</b>	<a href="https://www.webofscience.com/wos/woscc/full-record/WOS:000451104900111">https://www.webofscience.com/wos/woscc/full-record/WOS:000451104900111</a>
<b>Author</b>	HERY AWAN SUSANTO, S.T, M.T