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Nucleation rates of Ethanol and Methanol using SAFT and PC-SAFT equations of state[1] ABDALLA OBEIDAT, Jordan University of Science and Technology, FAWAZ HRAHSHEH, Missouri of Science and Technology — The two equations of state (EOS) called SAFT[1-2] and PC-SAFT [3] are used with the most general Gibbsian form P-form (i.e. an exact form without any approximations) of classical nucleation theory (CNT) to see if any improvement could be realized in predicted rates for vapor –to-liquid nucleation. The standard or S-form of CNT relies on the assumption of an incompressible liquid droplet. With the use of realistic EOS, this assumption is no longer needed. The exact SAFT and PC-SAFT EOS will be applied on Methanol and Ethanol to see if the P-form will improve the temperature (T) and supersaturation (S) dependence of the nucleation rate.

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