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# Stability and Reactivity of Progressively Methylolated Melamine Derivatives

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**Abstract:** Progressive methylation of the melamine molecule represents the first phase in the production of melamine resins. Melamine methylation consists of a cascade of chemical reactions between molecules of formaldehyde with the melamine or its partially methylolated derivative. We examined this cascade using *ab initio* calculations, a solvation model and have shown that during the progressive melamine methylation products with more formaldehyde-substituted amino groups are preferentially formed. Moreover by finding the transition state for the first reaction in

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