

Abstract Submitted
for the OSF17 Meeting of
The American Physical Society

Stereo-Chemical Analysis of the Dyes with Azo Compounds and Nitrogen Containing Compounds DAYEON CHOI, RICHARD KYUNG, Choice Research Group — In various cosmetic products, there are several harmful components that damage not only the skin but also the overall health, some of which derive from pigments. For example, azo dyes, a common pigment used in cosmetics, have raised concerns due to evidence that the pigment releases carcinogens. Other drawbacks include immediate side effects such as rashes or long lasting discomfort like tumors. Thus, the cosmetics only become available to those who have little health concerns, rather than the elderly or the disabled, and may have detrimental effects to those that are healthy. This study examines the chemical safety of the colorant molecules that contain nitrogen compounds, which will reveal the potential toxicity of the pigments. The potential toxicity is assessed using commercial compounds such as azo compounds and Carmines. By studying optimized geometries, chemical properties, and atomic properties of such molecules through a computational chemical software, the molecules thermodynamic stability is determined. This allows prediction of possible harmful effects of the azo compounds and Carmines. Further stereochemical analysis establishes possible effects of modifying the material and its biocompatibility on thermodynamic stability.

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Date submitted: 19 Sep 2017

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