WOMEN'S VOICES FOR THE EARTH

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June 8, 2020

To the CIR:

I have raised the concern previously about airbrush makeup products and the potential for very small particle sizes in the airbrush aerosol, with very long exposure times (20 – 40 minutes) directly to the user's face. The CIR has discussed these products but concluded that they could not assess the hazards – because there was very little data on the particle sizes of the aerosols produced by these products. I was pleased to find that relevant research has now been published. The recent study (Pearce et.al. 2019) measured particle size from the use of a commercially available makeup airbrush and found that the vast majority of particles emitted by airbrush makeup guns are less than 1.3 microns in diameter – and thus pose a potential inhalation hazard.

This information is currently relevant to the methicones assessment, as methicones are ingredients used in airbrush makeup liquids. Discussion of the inhalation hazards of methicones should include the potential hazards posed by these products.

This study should also be useful for the future discussion of inhalation hazards of cosmetic aerosols as well.

Details on the study:

Citation: Pearce K, Goldsmith WT, Greenwald R, Yang C, Mainelis G, Wright C. Characterization of an aerosol generation system to assess inhalation risks of aerosolized nano-enabled consumer products. Inhal Toxicol. 2019;31(9-10):357-367. doi:10.1080/08958378.2019.1685613

The study (Pearce et. al. 2019) looked specifically at measuring particle sizes from realistic applications of airbrush makeup.

The study explains:

"The system mimicked consumer application and potential exposure by spraying the liquid powder cosmetic via a commercial airbrush/nebulizer that consumers use (Model #: BC-200R, Luminess Direct, LLC., Stafford, TX). The product was sprayed from a distance of 6", as recommended by commercial airbrush/nebulizer manufacturers, onto a mannequin's face (Model #: 50023, Giell.com, Flowery Branch, GA) that was fitted with stainless steel sampling lines placed in the mannequin's nostrils and also directly above the top of the mannequin's head."

"A spray duration of 20 minutes was chosen for experiments based on the amount of time to apply even coverage of the products on the mannequin face in preliminary studies."

"…aerosols were monitored using both a scanning mobility particle sizer (SMPS) that measured particle size distributions between 10–435nm and an optical particle sizer (OPS) that measured size distributions between 0.3–10 microns. Additionally, a water-based condensation particle counter (CPC) was used to obtain total particle number concentration during aerosol generation sessions."

"*The micron-sized particles found were well within the accepted respirable particle size range of 1-10 microns, which confirms a fraction of these particles could be inhaled and may give rise to potential adverse respiratory health effects."*

The study also addressed the issue of potential agglomeration of particles during consumer use. This is an issue the CIR has brought up in previous conversations about the potential hazards of aerosols, under the assumption that the agglomerations of particles were likely to be greater than 10 microns in diameter. However, this study found that it was the nano-sized particles with diameters less than 50 nm (50 nm = .05 microns) were agglomerating to larger masses that were up to 1.3 microns in diameter. So, the researchers did observe likely agglomeration, but the resulting particles were still much smaller than 10 microns, and thus inhalable.

Airbrush makeup products can include methicones.

Here are some examples of the ingredients of airbrush makeup products containing methicones:

https://www.maccosmetics.com/product/7407/921/pro/proproduct-grid/pro-performance-hd-airbrush-makeup

MAC Pro Performance HD Airbrush Makeup

Ingredients: Isododecane, Trisiloxane, Water\Aqua\Eau, Dimethicone, Polysilicone-6, Silica, Octyldodecyl/ Ppg-3 Myristyl Ether Dimer Dilinoleate, Dimethicone Silylate, Butylene Glycol, Peg-10 Dimethicone, Tocopheryl Acetate, Ascorbyl Palmitate, Retinyl Palmitate, Caprylyl Glycol, Hexylene Glycol, Cetyl Peg/Ppg-10/1 Dimethicone, Diethylhexyl Malate, Methicone, Polyglyceryl-4 Isostearate, Polysilicone-11, Hexyl Laurate, Triethoxycaprylylsilane, Trimethylsiloxysilicate, Sodium Chloride, Phenoxyethanol, [+/- Mica, Iron Oxides (Ci 77491, Ci 77492, Ci 77499), Titanium Dioxide (Ci 77891), Bismuth Oxychloride (Ci 77163), Blue 1 Lake (Ci 42090), Carmine (Ci 75470), Chromium Oxide Greens (Ci 77288), Chromium Hydroxide Green (Ci 77289), Red 6 (Ci 15850), Red 6 Lake (Ci 15850), Red 7 Lake (Ci 15850), Red 21 (Ci 45380), Red 22 Lake (Ci 45380), Red 28 Lake (Ci 45410), Red 30 Lake (Ci 73360), Red 33 Lake (Ci 17200), Ultramarines (Ci 77007), Yellow 5 Lake (Ci 19140), Yellow 6 Lake (Ci 15985)]

https://www.airbasemakeup.com/about/silicone-based-foundation/airbase-foundation

Airbase Ultra Foundation

Ingredients: Cyclomethicone, Aqua, Dimethicone, Cyclopentasiloxane, Talc, lsododecane, Trimethylsiloxysilicate, Phenyl Trimethicone, Butylene Glycol, Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone, Silica, Titanium Dioxide(Nano), Caprylic/Capric Triglyceride, Cyclomethicone, Sorbitan

Sesouioleate, PEG/PPG-18/18 Dimethicone, Octyldodecanol, PEG-30, Dipolyhydroxystearate, Isononyl Isononanoate, Glycerin, Sodium Chloride, Disteardimonium Hectorite, Propylene Carbonate, Polysorbate 20, PEG-40 Sorbitan Peroleate, Stearic Acid, Aluminium Hydroxide, Xanthan Gum, Tocopheryl Acetate, Retinyl Palmitate, Trisodium EDTA, Phenoxyethanol, Ethylhexylglycerin.

May Contain: Titanium Dioxide (Cl 77891), Iron Oxides (Cl 77489, Cl 77491, Cl 77492, Cl 77499) Yellow 5 Lake (CI 19140), Red 7 Lake (CI 15850).

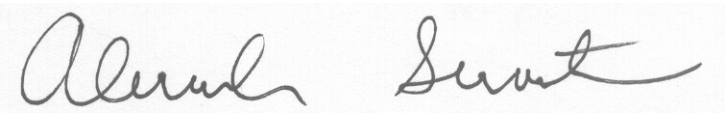
http://beautyhdcosmetics.com/product/second-skin-silicone-based-airbrush-foundations-30ml/

Second Skin Silicone-Based Airbrush Foundation

Ingredients:

Aqua (water), Glycerin, Propylene Glycol, Copolymer, PEG-12, Phenoxyethanol, Trisodium EDTA, Dimethicone, Cyclopentasiloxane, Sericite, Titanium Dioxide, Zinc Oxide. May contain: Iron Oxides, Micas.

Thank you for your consideration of this information.



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