



Pediatric and Youth Disposables

Below are suggested environmental questions for RFP/RFIs or considerations for the value analysis process for pediatric and youth disposable clothing products. We suggest using the Standardized Environmental Questions for Medical Products v1.0 found at <https://practicegreenhealth.org/gsc/standardized>. Additional considerations related to textiles include the following attributes.

Recognizing this is for disposables, many hospitals focusing on sustainability may prefer reusable or recyclable products as a key environmental attribute to reduce waste and associated waste costs. Another key attribute might be products free of chemicals of concern. Some of the specific chemicals of concern found in textiles are suggested below. If you have questions, email gsc@practicegreenhealth.org or call 866-598-2240.

#	RFP Questions	Preferred Answer	Definition	Rationale for Question
1	Is this product free of intentionally added antimony? (Yes/No)	Yes	Antimony is a silvery-white metal that is found in the earth's crust. Antimony ores are mined and then either changed to antimony metal or combined with oxygen to form antimony oxide. Antimony is found at low levels throughout the environment.[i]	Antimony oxides (primarily antimony trioxide) are used as fire retardants for plastics, textiles, rubber, adhesives, pigments, and paper.[ii] According to EPA, acute (short-term) exposure to antimony by inhalation in humans results in effects on the skin and eyes. Respiratory effects, such as inflammation of the lungs, chronic bronchitis, and chronic emphysema, are the primary effects noted from chronic (long-term) exposure to antimony in humans via inhalation. Human studies are inconclusive regarding antimony exposure and cancer, while animal studies have reported lung tumors in rats exposed to antimony trioxide via inhalation.

2	Does this product contain no more than 70 ppm hydrolysed formaldehyde for products directly in contact with skin or less than 300 ppm for products with no direct skin contact? (Yes/No)	Yes	<p>Formaldehyde is used on clothing for wrinkle, stain and water resistance. Formaldehyde resin products used in the textile industry include printing inks, dyes and textile finishing products. These formaldehyde-based materials help bind dyes and pigments to fabrics, prevent colors from running, improve a fabric's resistance to wrinkles, ease clothing care and maintenance and prevent mildew. The EU GPP (Green Public Procurement) Criteria for textiles with skin contact shall not exceed 70 ppm and 300 ppm for all other products, http://ec.europa.eu/environment/gpp/pdf/criteria/textiles.pdf. ISO 14184-1:2011 specifies a method for determining the amount of free and hydrolysed formaldehyde.</p>	<p>Formaldehyde has been identified by the International Agency for Research on Cancer (IARC) as a known chemical carcinogen. The adverse health effects from formaldehydes in textiles are likely to be skin irritations related to “free or easily hydrolysable (reacts with water) formaldehyde. The threshold is set by the EU Green Public Procurement specification for textiles that come into contact with the skin.</p>
3	Is this product free of intentionally added perfluorinated compounds? (Yes/No)	Yes	<p>Perfluorinated compounds (PFCs) are family of compounds (include Perfluorooctane sulfate (PFOS) and Polytetrafluorethylene (PTFE)). PFOS is used in stain repellent finishes such as Crypton®, Teflon®, Gore™, and Scotchguard.™[iii] PTFE is used as repellent and non-stick component.</p>	<p>PFCs are extremely persistent and bioaccumulative chemicals.^[iv] How we are exposed is not well documented but concern comes from the prevalence of PFCs in humans. In a study from Johns Hopkins Bloomberg School of Public Health, researchers analyzed cord blood samples from 300 newborns in Baltimore and found PFOS and PFOA in 99% and 100% of umbilical cord blood, respectively.^[v] In animal studies, PFOS is linked to bladder cancer, liver cancer, and developmental and reproductive toxicity (including neonatal mortality).</p>

4	Is this product free of intentionally added nanomaterials? (Yes/No)	Yes	According to a definition from the UK, a nanoparticle is a particle having one or more dimensions of the order of 100 nanometers or less. ^[vi] A nanoparticle (or nanopowder or nanocluster or nanocrystal) is a microscopic particle with at least one dimension less than 100 nm. ^[vii] The properties of materials change as their size approaches the nanoscale and as the percentage of atoms at the surface of a material becomes significant. ^[viii] Nanomaterials may be added to fibers or finishes. Silver nanoparticles are used in medical fabrics to control odors to kill bacteria.	Nanotechnology is a fast-growing and promise-filled sector of the economy. ^[ix] There are concerns about the lack of regulatory oversight of the industry, the absence of safety testing, and scant health data about potential environmental and human health effects. ^[x] Potential health impacts include impairing the ability of white blood cells to function – a risk factor for cancer; impact cell signaling processes which could lead to cardiovascular disease, programmed cell death and premature aging; and formation of granulomas that perceive foreign substances and fight them off. ^[xi] One study found silver nanoparticles wash out in the wash. ^[xii] Silver is more toxic than most other metals to many fresh- and salt-water organisms, ranging from phytoplankton to marine invertebrates – such as oysters and snails – to different types of fish. ^[xiii]
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[\[i\] Agency for Toxic Substances and Disease Registry \(ATSDR\). Toxicological Profile for Antimony. U.S. Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA. 1992](#)

[\[ii\] Ibid](#)

[\[iii\] Silas, Julie; Hansen, Jean; Lent, Tom; The Future of Fabric, October, 2007](#)

[\[iv\] Factsheet: Perfluorinated compounds and Human Health Concerns, Healthy Building Network, April 2009](#)

[\[v\] Apelberg, B, Goldman L, Calafat A, Herbstman J, Kuklennyik Z, Heidler J, Needham L, Halden R, Witter F. Determinants of Fetal Exposure to Polyfluoroalkyl Compounds in Baltimore, Maryland . Environmental Science and Technology, in press and online edition dated April 2007.](#)

^[vi] Malvern, http://www.malvern.com/labeng/industry/nanotechnology/nanoparticles_definition.htm viewed December 2011

^[vii] Science Daily, <http://www.sciencedaily.com/articles/n/nanoparticle.htm> viewed December 2011

[\[viii\] Ibid](#)

[\[ix\] Recommendations for Addressing Potential Health Risks from Nanomaterials in California, University of San Francisco Obstetrics Gynecology and Reproductive Services, 2010, p 8.](#)

[\[x\] Silas, Julie; Hansen IIDA, LEED AP, CID, AAHID, Jean; Lent, Tom; The Future of Fabric, October, 2007](#)

[\[xi\] UCSF pg 32](#)

^[xii] Geranio, L, M Heuberger, and B Nowack. 2009. The behavior of silver nanotextiles during washing. Environmental Science and Technology 43(21):8113–8118..

[\[xiii\] Ibid](#)