



Suggested EPP Questions for Furniture for Health Care

Why ask environmental questions for furnishings? Furniture and medical furnishings are made with chemicals and materials that may be hazardous and may pose risks to staff, patients and entire communities throughout their life cycle. Below are suggested line-item environmental questions for furniture and medical furnishings. These questions can be integrated into a RFP/RFI and used to evaluate selection or identification of environmental attributes.

Questions are identified as baseline and preferable. We encourage, at a minimum, to ask the baseline questions of potential suppliers or use in an RFP/RFI. Preferable questions are also suggested to strengthen the environmental considerations. For each question, definitions and rationales are provided. The additional notes reference the applicability to LEED credits and the Healthier Hospitals Safer Chemicals Challenge for furniture, <http://healthierhospitals.org/hhi-challenges/safer-chemicals>. If you any questions or comments, email gsc@practicegreenhealth.org.

#	Question	Definition	Justification for asking question	Preferred Answer	Additional Notes
Baseline Questions					
1	Is this product free of PVC (polyvinyl chloride) plastic? (Yes/No) (Products made up of less than 1% PVC by weight are exempt. Electronic components are also exempt.)	PVC plastic (also known as vinyl) is used in a wide variety of applications in the health care setting, including medical devices, disposable gloves, curtains, flooring, and other building materials. It is also used as cover fabric and for other components of some furniture.	PVC manufacture requires the use ethylene dichloride (EDC), a probable human carcinogen, and vinyl chlorine monomer (VCM), a known human carcinogen. The manufacture and incineration of PVC also generates dioxin, a known human carcinogen and persistent, bioaccumulative compound. PVC without additives is brittle and not stable in the presence of heat or light. The additives necessary to confer properties such as flexibility and resistance to heat and UV light can have toxic properties.	Yes	Healthier Hospitals (HH) Safer Chemicals Challenge

2	Does this product contain less than 100 ppm of per- and poly-fluorinated compounds (PFCs)? (Yes/No)	<p>PFCs (often referred to as PFASs) are widely used to make everyday products, including furnishings and fabrics, more resistant to stains, grease, and water. PFCs are defined as a category of compounds that includes long and short chain per- and poly-fluorinated alkyl compounds and fluorinated polymers, including: (1) Perfluoroalkyl substances: Compounds for which all hydrogen atoms on all carbon atoms (except for carbons associated with functional groups) have been replaced by fluorine atoms; (2) Polyfluoroalkyl substances: Compounds for which all hydrogen atoms on at least one (but not all) carbon atom have been replaced by fluorine atoms; (3) Fluoropolymers: Carbon-only polymer backbone with fluorine atoms directly bound; (4) Perfluoropolyethers: Carbon and oxygen polymer backbone with fluorine atoms directly bound to carbon atoms; (5) Side-chain fluorinated polymers: Variable composition non-fluorinated polymer backbone with fluorinated side chains.</p>	<p>Long-chain PFCs are found worldwide in the environment, wildlife, and humans. They are bioaccumulative in wildlife and humans, and are highly persistent in the environment. Significant adverse effects have been identified in laboratory animals and wildlife. Some studies in more highly exposed human populations show associations with pregnancy-induced hypertension, thyroid hormone abnormalities, and increased risk of various kinds of cancer. Given the long half-life of these chemicals in humans, body burdens will decrease only slowly if and when the use of long-chain PFCs is eliminated. Shorter-chain PFCs are reported to be less likely to bioaccumulate, but they are highly persistent in the environment and exposures will increase if they are used as replacements for longer-chain PFCs. Leading scientists have recently called for discontinuation of all non-essential uses of fluorochemicals.</p>	Yes	<p>HH Safer Chemicals Challenge (HH does not set 100 ppm threshold)</p> <p>LEED for Healthcare v2009 MR Credit 5: Furniture and Medical Furnishings, and</p> <p>LEED v4, Building Design and Construction MR Credit, Furniture and Medical Furnishings (Healthcare)</p>
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3	<p>Does this product contain less than 1000 ppm of added flame retardants by weight of the homogeneous material? (Yes/No) (Electronic components are exempt.)</p>	<p>Flame retardants are chemicals added to materials such as plastics, textiles, surface finishes, and coatings to inhibit, suppress, or delay the spread of fire. To meet certain flammability standards, flame retardant chemicals may be added to a range of products, including electronics, upholstered furniture, and hospital privacy curtains. Homogeneous material refers to the RoHS Directive: Homogeneous material means a material that cannot be mechanically disjointed into different materials; it is of uniform composition throughout. Electronic components are exempt</p>	<p>Many flame retardant chemicals do not remain in the product and slowly offgas into the air, dust, and water, eventually entering the food chain and building up in our bodies. Many flame retardants are linked to a range of negative health effects. Depending on the flame retardant, effects include reproductive, neurocognitive, and immune system impacts, among others. Three common halogenated flame retardants appear on California's Proposition 65 list as human carcinogens. Safety data on newer flame retardants are still emerging and are often not complete, but early studies suggest there is reason to be concerned about the newer alternative chemicals on the market.</p>	Yes	<p>HH Safer Chemicals Challenge</p> <p>California's updated flammability standard for upholstered furniture, Technical Bulletin 117-2013 (TB 117-2013), is a smolder test that can be met without the use of flame retardants. The updated standard increases fire safety and protects public health by addressing how and where fires start in real world fire scenarios and eliminating the need for flame retardant chemicals. Confirm that your jurisdiction enables you to specify TB 117-2013 furniture rather than TB 133. TB 133 is typically met with the use of flame retardants and is required in non-sprinklered facilities in order for a health care organization to participate in Medicare and Medicaid reimbursement.</p>
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4	<p>Is this product free of triclosan, triclocarban, and other added or built-in chemical antimicrobials? (Yes/No) (Does not apply to antimicrobials added for the sole purpose of preserving the product.)</p>	<p>An antimicrobial is an agent that kills microorganisms or inhibits their growth. Exemption: Where antimicrobials must be used, they must be registered by the U.S. EPA under the Federal Insecticide Fungicide, and Rodenticide Act (FIFRA) and have published data that show efficacy in a hospital/clinical setting measured by a reduction in healthcare-associated infections (HAIs).</p>	<p>With rare exceptions, very few data support the use of antimicrobials in furniture as a means of reducing healthcare-associated infections (HAIs). Some antimicrobials pose risks to human health and the environment and may contribute to antimicrobial resistance. Moreover, the presence of antimicrobials in furniture may lead to a false sense of security and result in less stringent infection control practices. The goal is structured to allow for the use of antimicrobials where research shows that they contribute to reduced incidence of HAIs. This is an emerging and active area of research, and this goal may change as additional data are available.</p> <p>The U.S. Food and Drug Administration (FDA) in September, 2016, prohibited the use of antimicrobials in consumer antiseptic wash products, including hand washes and body washes.</p>	Yes	<p>LEED Healthcare MR Credit 5: Furniture and Medical Furnishings, and</p> <p>LEED v4, Building Design and Construction MR Credit, Furniture and Medical Furnishings (Healthcare)</p>
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5	Does this product meet the ANSI/BIFMA e3 Furniture Sustainability Standard, Sections 7.6.1 and 7.6.2, for VOC emission limits using either the concentration modeling approach or the emissions factor approach using the applicable scenario? (Yes/No)	<p>The ANSI/BIFMA e3 Furniture Sustainability Standard is a voluntary standard that establishes performance criteria that address environmental and social aspects throughout the supply chain. It addresses product-based characteristics in the general areas of materials, energy usage, human and ecosystem health, and social responsibility impacts. The standard was designed to allow for multiple levels of achievement and to provide an open alternative to proprietary protocols.</p> <p>For a link to certifiers and certified products, see http://levelcertified.org/thirdparty/. (Note: This link will not tell you who has achieved Sections 7.6.1 and 7.6.2. Suppliers could provide a copy of the ANSI/BIFMAe3 scorecard as verification) Level is a third party certification for the ANSI/BIFMA e3 Standard</p>	Products emitting volatile organic compounds (VOCs) can irritate the respiratory tract and contribute to respiratory ailments such as asthma. Some chemicals, such as formaldehyde, can also react with other chemicals to form pollutants such as ground level ozone and smog. Formaldehyde is a common indoor air contaminant because of its use in furniture, cabinets, countertops, insulation, wallpaper, paints, and paneling. The International Agency for Research on Cancer (IARC) classified formaldehyde as a human carcinogen in 2006. More recently, the National Toxicology Program, an interagency program of the Department of Health and Human Services, named formaldehyde as a known human carcinogen in its 12th Report on Carcinogens (NTP 2011).	Yes (except for salvaged and refurbished furniture)/N/A (outdoor furniture)	HH Safer Chemicals Challenge - Guidelines for Furniture LEED for Healthcare v2009 MR Credit 5: Furniture and Medical Furnishings, and LEED v4, Building Design and Construction MR Credit, Furniture and Medical Furnishings (Healthcare)
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Additional Preferable Questions

Question #6 below on volatile organic compounds has stricter VOC requirements than #5 above

6	<p>Is this product certified by a third party to meet VOC emission limits using criteria based on the Standard Method for Testing and Evaluation of Volatile Organic Compound Emissions from Indoor Sources using Environmental Chambers, or CDPH/EHLB/Standard Method V1.1 (Feb 2010) (otherwise known as the California 01350 Standard)? (Yes/No)</p> <p>Applicable certifications and levels include: GREENGUARD Gold, SCS Indoor Advantage (for BIFMA Credit 7.6.1) and SCS Indoor Advantage Gold (for BIFMA Credits 7.6.1 and 7.6.2), ANSI/BIFMA LEVEL Furniture Sustainability Standard at level 1, 2 or 3, with at least one point score for Sections 7.6, Cradle to Cradle Gold or Platinum.</p>	<p>This question is more stringent than #5. BIFMA e3 is self-certified and BIFMA level is a 3rd party certified program. For a link to certifiers and certified products, see ANSI/BIFMA e3, http://levelcertified.org/thirdparty/. (Note: This link will not tell you who has achieved Sections 7.6.1 and 7.6.2. Suppliers could provide a copy of the ANSI/BIFMAe3 scorecard as verification with at least one point for 7.6). GREENGUARD Gold, http://productguide.ulenvironment.com/ResearchResults.aspx?CertificationID=2. SCS Indoor Advantage Gold, http://www.scsglobalservices.com/certified-green-products-guide, http://www.c2ccertified.org/products/registry, Cradle to Cradle Gold or Platinum, http://www.c2ccertified.org/products/registry.</p>	<p>Products emitting volatile organic compounds (VOCs) can irritate the respiratory tract and contribute to respiratory ailments such as asthma. Some chemicals, such as formaldehyde, can also react with other chemicals to form pollutants such as ground level ozone and smog. Formaldehyde is a common indoor air contaminant because of its use in furniture, cabinets, countertops, insulation, wallpaper, paints, and paneling. The International Agency for Research on Cancer (IARC) classified formaldehyde as a human carcinogen in 2006. More recently, the National Toxicology Program, an interagency program of the Department of Health and Human Services, named formaldehyde as a known human carcinogen in its 12th Report on Carcinogens (NTP 2011).</p>	<p>Yes (except for salvaged and refurbished furniture)/NA (outdoor furniture)</p>	<p>LEED for Healthcare v2009 MR Credit 5: Furniture and Medical Furnishings, and LEED v4, Building Design and Construction MR Credit, Furniture and Medical Furnishings (Healthcare)</p>
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7	<p>Does the product and each of its components contain less than 1000 ppm phthalates: DEHP, BBP, DnHP, DIDP, DBP, DINP, DIBP, DPENP, DCHP, and DHEXP? (Yes/No)</p>	<p>Phthalates are esters of phthalic acid mainly used as plasticizers (substances added to plastics to increase their flexibility, transparency, durability, and longevity). They are used primarily to soften polyvinyl chloride (PVC). The scientific literature provides strong evidence on the potential harm for the ten phthalates covered in this question: Di-2-ethyl hexyl phthalate (DEHP) CAS 117-81-7, Benzylbutylphthalate (BBP) CAS 85-68-7, Di-n-hexyl phthalate (DnHP) CAS 84-75-3, Di-isodecyl phthalate (DIDP) CAS 68515-49-1 or 26761-40-0, Dibutyl phthalate (DBP) CAS 84-74-2, Diisononyl phthalate (DINP) CAS 28553-12-0 and 68515-48-0, Diisobutyl Phthalate (DIBP) CAS 84-69-5 as well as Di n-pentyl phthalate (DPENP) CAS 131-18-0, dicyclohexyl (DCHP) CAS 84-61-7 and di-n-hexyl phthalate (DHEXP) CAS 84-75-3. People can be exposed through the use of products containing these chemicals. Suppliers may answer yes if they have specified phthalate material restrictions covering these ten to their suppliers and have controls in place to ensure specifications are met. Suppliers may answer yes to this question if, upon request, they can provide a formal declaration stating that the products supplied do not contain intentionally added phthalates - BBP, DnHP, DIDP, DBP, DINP and DiBP - above the stated threshold. Upon request, declarations must be written, signed, and dated on the manufacturer's letterhead by the manufacturer. Or, suppliers may answer yes to this question if they have test results for the components showing the listed phthalates are not present in any component above 1000ppm.</p>	<p>People can be exposed through the use of products containing these chemicals. The National Research Council has noted the importance of looking at cumulative exposure from multiple phthalates. The federal Consumer Product Safety Improvement Act (CPSIA) of 2008 requires the content of phthalate esters in child care articles, including furniture products, not contain more than 0.1 percent of each of the three phthalates: DEHP, DBP and BBP. Six of the phthalates prioritized here (DEHP, BBP, DnHP, DBP, DIDP, DINP) are listed as reproductive toxicants under California's Prop 65. [11] Five phthalates including DEHP, BBP, DIDP, DINP, and DIBP are part of an EPA phthalates chemical action plan to reduce exposures because of their toxicity and evidence of pervasive human and environmental exposure [12] DEHP, BBP, DIDP, DBP, and DINP are part of the database of chemicals to be avoided by International Electrotechnical Commission's IEC 62474, Material Declaration for Products for products used by the Electrotechnical Industry.[13] The National Research Council has noted the importance of looking at cumulative exposure from multiple phthalates [15]. The RoHS directive will ban the following four phthalates in electrical equipment from 22 July 2019: DEHP, DBP, DiBP, and BBP. [16] In 2002, the FDA issued a Public Health Notification for some PVC devices containing DEHP because of potential health risks.[10] Based on animal studies, DEHP has the potential to cause reproductive and developmental effects, endocrine disruption and testes toxicity and liver cancer. Medical treatments with high exposures to DEHP are: exchange transfusion in neonates, ECMO in neonates, TPN in neonates, multiple procedures in sick neonates, hemodialysis in peripubertal males or pregnant and lactating women, and enteral nutrition in neonates and adults. The Consumer Product Safety Commission restricts the use of DIDP in toys that may go in children's mouths [14] The Chronic Hazard Advisory Panel on Phthalates and Phthalate Alternatives recommends action on a number of the targeted phthalates including DEHP, BBP, DBP, DINP, DIBP, DPENP, DCHP, and DHEXP</p>	Yes	
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8	Does this product contain less than 100 ppm metals in any part of the product including antimony, lead, mercury, and cadmium compounds? (Yes/No) If no, please specify.	Metals refer to any metallic chemical element that has a relatively high density and is toxic or poisonous at low concentrations.	Chronic exposure to these metals can have serious health consequences. Metals are particularly toxic to the sensitive, rapidly developing systems of fetuses, infants, and young children. These metals are toxic and persistent.	Yes	LEED for Healthcare v2009 MR Credit 5: Furniture and Medical Furnishings, and LEED v4, Building Design and Construction MR Credit, Furniture and Medical Furnishings (Healthcare)
9	Does this product contain less than 100 ppm hexavalent chromium (often found in chrome plating or colors)? (Yes/No)	Hexavalent chromium is a toxic form of the element chromium. It is man-made and widely used in many industries.	Chromium is a recognized carcinogen (IARC 1997) and the World Health Organization (WHO) has determined that chromium(VI) is a human carcinogen. EU RoHS Directive 2002/95/EC bans the use of this chemical (among the six targeted) in electronic equipment and medical devices because of its health and environmental effects. See http://ec.europa.eu/environment/waste/rohs_eee/index_en.htm Alternatives exist in the market for table and chair frames: Polished or brushed aluminum and other metals and powder coated finishes.	Yes	LEED for Healthcare v2009 MR Credit 5: Furniture and Medical Furnishings, and LEED v4, Building Design and Construction MR Credit, Furniture and Medical Furnishings (Healthcare) EU RoHS Directive 2002/95/EC
10	Does this product contain less than 0.1% by weight of tin or organotin compounds (e.g., tributyltin (TBT), dibutyltin (DBT))? (Yes/No)	Organotin compounds are chemical compounds based on tin with hydrocarbon substituents. They can be used as plastic stabilizers (mostly in PVC) and catalytic agents, industrial biocides, in antifouling paints and consumer articles, such as textiles.	Organotin compounds can have adverse health effects. They are generally absorbed through the respiratory track and skin. Their use in paints on ships were found to pose risks to aquatic organization through endocrine disruption. The EU restricts the use of organotins. See: http://www.intertek.com/uploadedFiles/Intertek/Divisions/Consumer_Goods/Media/PDFs/Sparkles/2009/sparkle454.pdf	Yes	EU Regulation (EC) 1097/2006 REACH Regulation

11	Is this product made of wood which is certified by the Forest Stewardship Council (FSC)? (Yes/No)	Forest Stewardship Council certifies wood that is harvested from sustainably managed forests based on strict guidelines. For more information, visit: www.fsc.org .	Deforestation and forest destruction is the second leading cause of carbon pollution, causing 20% of total greenhouse gas emissions. Certain parts of the U.S. are seeing declining forest coverage lost to suburban real estate development. By creating demand for products from responsibly managed forests, this helps protect forests for future generations.	Yes	<p>LEED for Healthcare v2009 MR Credit 5: Furniture and Medical Furnishings</p> <p>LEED v4, Building Design and Construction MR Credit, Furniture and Medical Furnishings (Healthcare)</p> <p>LEED for New Construction v2009 MR Credit 6: Certified Wood, and</p> <p>LEED v4, Building Design and Construction MR Credit, Building Product Disclosure and Optimization - Sourcing of Raw Materials</p> <p>LEED for Existing Buildings v2009: Operations and Maintenance MR Credit 2.2: Sustainable Purchasing— Furniture, and</p> <p>LEED v4, Building Design and Construction MR Credit, Purchasing - Facility Maintenance and Renovation</p>
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12	<p>If this product contains composite wood, has this product been third party certified to meet the formaldehyde emissions limits set by the Toxic Substances Control Act (TSCA) Title VI and the California Air Resources Board (CARB) Composite Wood Products Regulation (California 93120 Compliant or CA Phase 2 Compliant)? (Yes/No/NA)</p>	<p>This applies to furniture containing composite wood. "Composite wood products" are panels made from pieces, chips, particles, or fibers of wood bonded together with a resin. The CA Air Resources Board (CARB or ARB) passed an Airborne Toxic Control Measure (ACTM) regulation in 2007 that applies to furniture goods containing hardwood plywood, particleboard, medium density fiberboard, thin medium density fiberboard (thickness ≤ 8mm), and also furniture and other finished products made with composite wood products. Phase 2, which established a lower formaldehyde limit set at .05 ppm, was fully implemented in 2012. Chamber testing methods are based on ASTM D6007. For more information, see http://www.arb.ca.gov/toxics/compwood/compwood.htm. For a list of ARB approved certifiers, see http://www.arb.ca.gov/toxics/compwood/certifiers.htm The TSCA Act Title VI regulates formaldehyde emissions in composite wood products, https://www.epa.gov/formaldehyde.</p>	<p>One of the major sources of exposure to formaldehyde identified by the CA Air Resources Board was from inhalation of formaldehyde emitted from composite wood products containing urea-formaldehyde resins. The International Agency for Research on Cancer (IARC) reclassified formaldehyde from "probably carcinogenic to humans" to "carcinogenic to humans" in 2004, based on the increased risk of nasopharyngeal cancer. Formaldehyde was also designated as a toxic air contaminant (TAC) in California in 1992 with no safe level of exposure. If you purchase panels or finished goods, you will likely encounter a label on the product(s) that includes phrases such as "California 93120 Compliant for Formaldehyde" or "California Phase 2 Compliant."</p>	<p>Yes/No/NA A</p>	<p>LEED for Health Care v2009 MR Credit 5: Furniture and Medical Furnishings</p>
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13	Does this product contain recycled content and has been verified for no baseline chemical contaminants (from questions #1-5 above, including PVC, flame retardants, triclosan, triclocarban, PFCs, and VOCs)? (Yes/No)	Recycled content can be from recycling programs (postconsumer) or waste material from production processes or industrial/agricultural sources (preconsumer or postindustrial). Indicate whether product includes recycled content feedstocks; if so, indicate method for verification that composition of feedstock does NOT include any of the baseline chemicals. Baseline chemicals are listed in Questions 1-5 above, including PVC, flame retardants, triclosan, triclocarban, PFCs, and VOCs.	Buying recycled-content products ensures that the materials collected in recycling programs will be used again in the manufacture of new products. Less energy is typically required to manufacture these goods. When energy demand decreases, fewer fossil fuels are burned and less carbon dioxide is emitted into the atmosphere.	Yes	LEED for Healthcare v2009 MR Credit 5: Furniture and Medical Furnishings and LEED v4, Building Design and Construction MR Credit, Furniture and Medical Furnishings (Healthcare) LEED for New Construction v2009 MR Credit 4: Recycled Content and LEED v4, Building Design and Construction MR Credit, Building Product Disclosure and Optimization - Sourcing of Raw Materials LEED for Existing Buildings v2009: Operations and Maintenance MR Credit 2.2: Sustainable Purchasing— Furniture and LEED v4, Building Design and Construction MR Credit, Purchasing - Facility Maintenance and Renovation
14	Does this product contain rapidly renewable content? (Yes/No)	Rapidly renewable materials must have a harvest cycle of 10 years or less. This includes materials like bamboo and agrifibers. Rapidly renewal materials come from either animals or plants.	Rapidly renewable materials require fewer environmental inputs than conventional construction materials because they can be replenished within 10 years of harvest.	Yes	LEED for Healthcare v2009 MR Credit 5: Furniture and Medical Furnishings and LEED v4, Building Design and Construction MR Credit, Furniture and Medical Furnishings (Healthcare) LEED for New Construction v2009 MR Credit 6: Rapidly Renewable Materials LEED for Existing Buildings v2009: Operations and Maintenance MR Credit 2.2: Sustainable Purchasing— Furniture

Corporate Questions					
15	Is this product part of a manufacturer-run or manufacturer-provided Take Back Program for reuse, refurbishment or recycling for surplus furniture at the facility level? (Yes/No)	Many manufacturers are taking responsibility for their products at the end-of-life by offering or sponsoring take back programs. Running or sponsoring a program means the manufacturer offers a Take Back Program with options for reuse, refurbishment or recycling of the product even in states where there is not a law requiring it. This question does not include lease returns for refurbishment and recycling. While FDA has not issued guidance defining "refurbishing", proposed rules (21 CFR Parts 801) defines it as used devices that do not significantly change the finished device's performance or safety specifications, or intended use. This may also be called reconditioning, rebuilding, servicing the device or merely selling as is.	Many furniture companies offer Take-Back Programs to support recycling, reuse, refurbishment, resale.	Yes	
16	Can your company provide spend reports at the health care organization level for products that meet the environmental attributes in Questions 1-5? (Yes/No)	A spend report includes a list of products purchased from a specific location(s), environmental attributes associated with product, and the dollars spent - in electronic format.	Spend reports allow hospitals to measure their success in purchasing environmentally preferable products and services	Yes	

1. Perfluorinated Compounds, National Institute of Health, https://www.niehs.nih.gov/health/materials/perflourinated_chemicals_508.pdf, viewed October 2016

2. Flame Retardants in Furniture, Green Science Policy Institute, <http://greensciencepolicy.org/topics/furniture/>, viewed November, 2015

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