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Your TÜV SÜD softlines contacts worldwide

Asia Pacific

Cambodia	Indonesia	+65 6773 9751
Malaysia	Philippines	softlines@tuv-sued.com
Singapore	Thailand	
Vietnam		

Hong Kong	Mainland China	+86 21 6141 0123
Taiwan		softlines@tuv-sued.cn

Bangladesh	India	+91 22 3082 9797
Sri Lanka		softlines@tuv-sued.in

Korea		+82 2 3215 1100
		sun.ahn@tuv-sued.kr

NAFTA region		+800 888 0123
		softlines@tuv-sued.com

Europe, Middle East & Africa

Germany		+49 151 5843 0950
		softlines@tuv-sued.com

Italy		+39 051 2987 411
		ps.teesile@tuv.it

Spain		+34 93 281 0695
		florian.hilt@tuv-sued.es

Turkey		+90 212 347 9810
		firat.capkin@tuv-sued.com.tr

UK		+44 20 8363 8002
		theva@tuvps.co.uk

Rest of the world		+65 6773 9751
		softlines@tuv-sued.com

For more information, visit us at
www.tuev-sued.com/softlines



Minnesota and Connecticut Regulate Cadmium in Children's Jewellery

In June 2010, Connecticut became the second U.S. state to ratify laws that regulate the amount of cadmium in children's jewellery. The announcement follows a similar measure by Minnesota a month earlier, but differs in both scope and requirements.

The decisions came following an Associated Press investigation in January 2010 which found that 12 out of 103 items purchased from stores in New York, Ohio, Texas and California contained at least 10 per cent cadmium. Some of the mainly China-manufactured children's costume contained between 80 to 90 percent cadmium by weight. The news report sparked a nationwide voluntary recall of several lines of children's jewellery products.

DANGEROUS TO KIDS

Cadmium is used in the manufacture of precious, non-precious and white metal jewellery. It is toxic if ingested by children, and research shows that cadmium in high levels is a known carcinogen and can harm kidneys and bones. The U.S. Center for Disease Control and Prevention considers cadmium to be the 7th most hazardous substance in the environment¹.

While the new laws in Minnesota and Connecticut are similar, the standards used are different (see table A). The Connecticut law² bans products containing more than 75 ppm total cadmium by weight, whereas the



Minnesota law³ prohibits products with more than 75 ppm soluble cadmium as defined by the ASTM F963 "Standard Consumer Safety Specification for Toy Safety".

The new laws affect all jewellery or toys designed for or intended for use by children including bracelets, necklaces, pendants and earrings as well as toys and modelling clay. Suppliers of the alloys and solders used in these products or their packaging are required to produce certificates showing the products' cadmium content. Producers, importers, distributors and retailers in the supply chain are also required to take measures to ensure that the products they supply to consumers are safe.

TESTING PROCEDURES

Generally, inspectors can use portable X-ray fluorescence (XRF) devices to screen products for the presence of cadmium, but in order to measure the total amount of the element by weight, laboratories use Inductively Coupled Plasma spectrometers like optical

¹ View the complete CERCLA Priority List of Hazardous Substances at <http://www.atsdr.cdc.gov/cercla/07list.html>.

² The complete Act may be downloaded from <http://www.cga.ct.gov/2010/ACT/Pa/pdf/2010PA-00113-R00HB-05314-PA.pdf>.

³ The complete Act may be viewed at <https://www.revisor.mn.gov/bill/bldbill.php?bill=S2510.4.html&session=ls86>.

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emission spectroscopes (ICP OES) and mass spectrometers (ICP MS) as well as Atomic Absorption Spectrophotometers (AAS). Test samples for these measurements are prepared by breaking down the material completely with the help of sulfuric acid, a process known as the "wet decomposition method" (method: EN 1122). This method is used to determine total cadmium content in the range of 10 mg Cd/kg to 3000 mg Cd/kg.

In order to determine soluble cadmium content in jewellery, laboratories tend to favour the digestive acid simulation method (method: EN 71-3). This procedure measures the amount and rate at which cadmium leaches or "migrates" out of metal jewellery over a time-span of two hours.

Maryland Bans Brominated Flame Retardant

The U.S. state of Maryland has passed a Bill¹ prohibiting the use of Decabrominated Diphenyl Ether (DecaBDE) in all consumer products sold in the state including furniture, electrical or electronic equipment, transportation equipment and military equipment. This makes it the fourth state in the U.S. to ban DecaBDE after Maine, Vermont and Oregon.

DecaBDE is used as a fire retardant in electronics, furniture, and electronic items like mobile phones and remote controls. It is part of a group of chemicals known as PBDEs that demonstrate toxic effects in animal studies. In a study² by the U.S. Centers for Disease Control and Prevention, these chemicals were found in over 60% of humans tested.

PRODUCTS AFFECTED AND EXEMPTED

Although the Act comes into effect on 1 October 2010, the effective date of the ban varies according to product (see table B).

The prohibition covers consumer products such as residential upholstered furniture, televisions or computers, electronic enclosures, mattresses, recycling products and disposal products. However, shipping pallets used to transport unpackaged fruits and vegetables

¹ The complete Bill may be viewed at <http://mlis.state.md.us/2010rs/billfile/sb0556.htm>

² Download the complete report at http://www.cdc.gov/exposurereport/pdf/brominated_flame_retardants_1.pdf

TABLE A: DATES OF EFFECT FOR PRESCRIBED CADMIUM LIMITS

State	Scope	Cadmium limits	Date of effect
Minnesota	Jewellery for children of up to 12 years of age	Not more than 0.0075% by weight	1 July 2014
Connecticut	Jewellery for children of up to 6 years of age Also applies to surface coating or accessible substrate material of metal or plastic components	Not more than 0.0075% soluble cadmium as measured by the ASTM F963 standard (Safety Specification for Toy Safety)	Manufacturers and wholesalers: 1 January 2011 Resellers: 1 March 2011

HOW CAN TÜV SÜD SUPPORT AFFECTED CUSTOMERS?

Testing metal jewellery for cadmium content is a complex process in which only trained technicians with the requisite equipment and expertise are able to produce accurate test results. TÜV SÜD can assist businesses

dealing with cadmium by assessing products and reporting whether they meet the levels required by the states of Minnesota and Connecticut. TÜV SÜD's consultants can also be relied upon for interpretation and advice on other issues surrounding banned toxic substances like cadmium as they arise. ■

are exempt from the ban. In addition, Section D of the Bill does not prohibit:

- the sale of a product already in the retailer's inventory on or after the effective date of the ban;
- the recycling of a product that contains DecaBDE;
- the selling, leasing, recycling or disposing of a product that contains recycled DecaBDE; or
- the transportation or storage of a prohibited product for later distribution outside the state.

HOW CAN TÜV SÜD SUPPORT YOU?

Manufacturers, sellers, distributors and retailers of consumer products must seek alternatives to DecaBDE as they will be required to certify that their products are free from the chemical. Their waste disposal and transportation processes should also be DecaBDE-free so as to remove all possible sources of contamination.

TÜV SÜD's well-equipped facilities and highly-trained experts can help businesses achieve zero-DecaBDE content targets. Our state-of-the-art laboratories and quality evaluation services can certify a product's compliance to Maryland's DecaBDE ban and other chemical prohibitions in the U.S. ■

TABLE B: EFFECTIVE DATES OF BANS FOR VARIOUS PRODUCTS

Product	Effective date of ban
Mattresses, upholstered furniture designed for residential use and consumer electrical or electronic equipment	31 December 2010
Transportation equipment, military equipment and components of transportation or military equipment with the exception of: <ul style="list-style-type: none"> a. Original Equipment Replacement service parts or other products manufactured before 1 January 1 2011, if the parts or products were manufactured in compliance with federal state and local laws. b. A vehicle as defined in 11-176 of the Transportation Article c. A Product, Part or Replacement part for use in a vehicle 	31 December 2013
All other products	31 December 2012

EPA Releases Draft Formaldehyde Report

On 2 June 2010, the U.S.-based Environmental Protection Agency (EPA) released its Toxicological Review of Formaldehyde-Inhalation Assessment for public comment. This comes months before the California's airborne toxic control measure (ATCM) comes into enforcement on 1 January 2011.

Formaldehyde has been designated as a toxic air contaminant (TAC) in California since 1992 with no safe level of exposure, and the International Agency for Research on Cancer (IARC) has classified formaldehyde as "carcinogenic to humans" since 2004. A study by the California Air Resources Board (CARB) found that one major source of formaldehyde exposure is the inhalation of formaldehyde emitted from binding adhesives and resins used in composite wood products. Many types of furniture and luggage goods contain these types of wood products to maintain the structure of the product.

In April 2007, the CARB proposed an airborne toxic control measure (ATCM) to reduce formaldehyde emissions from composite wood products. The regulation was filed with the Secretary of State and codified into Title 17 of the California Code of Regulations. The first



emission standards were implemented on 1 January 2009 and went into immediate effect.

The EPA draft report will remain open for independent peer review and public comment until 31 August 2010. However, this will not affect the date of enforcement for the formaldehyde ATCM regulation, which is scheduled for 1 January 2011.

HOW CAN TÜV SÜD SUPPORT YOU?

Manufacturers of hardwood plywood, particleboard, medium density fiberboard, thin medium density fiberboard (≤ 8 mm thick), and also furniture and other finished products made with composite wood products

must have their compliance to the ATCM's formaldehyde emission standards verified by a CARB-approved testing agency. Suppliers in the manufacturing value chain are also required to produce certificates showing that the wood products they supply to manufacturers are formaldehyde-free.

Equipped with top-notch laboratories worldwide, TÜV SÜD possesses the technical know-how to help customers test for the presence of formaldehyde in their products. Our technical experts and consultants can also advise companies on how other developments in environmental regulations may affect their businesses. ■

Date of Effect of Indonesia Labelling Regulation Brought Forward

The Ministry of Trade of the Republic of Indonesia has brought forward the effective date of the labelling regulation No. 62/M-DAG/PER/12/2009 from 1 December 2010 to 1 September 2010. This follows a revision to the regulation on 21 May 2010, and affects all manufacturers or importers of regulated goods to be traded in the Indonesian market.

The regulation requires that all regulated products intended for sale in Indonesia are



to be affixed with labels in Indonesian, in a manner that can be easily understood. The labels must also include the name, brand and address of the product's seller, whether

manufactured locally or imported. Product label information must be submitted to and approved by the Director of Supervision of Available Goods and Services before the product is placed on the market.

TÜV SÜD can provide manufacturers and importers with local language support to check the accuracy of their labels under the new labeling regulations and help ensure that their label information meets the requirements of the Director's inspection. ■

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