

# CERTIFICATE OF COMPLIANCE



**GREENGUARD**

PRODUCT CERTIFIED FOR  
LOW CHEMICAL EMISSIONS  
UL.COM/GG  
UL 2818

**JSI**

**Protocol (Swivel)**

Restrictions: GREENGUARD Certified Upholstery Only

16112-410

Certificate Number

04/21/2011 - 08/31/2018

Certificate Period

Certified

Status

UL 2818 - 2013 Standard for Chemical Emissions for Building Materials, Finishes and Furnishings

Commercial furniture and furnishings are tested in accordance with ANSI/BIFMA M7.1-2011(R2016) and determined to comply with ANSI/BIFMA X7.1-2011(R2016) and ANSI/BIFMA e3-2014e Credit 7.6.1. Seating products are modeled in the seating environment with a ventilation rate of 24.8 m<sup>3</sup>/hour.

Products tested in accordance with UL 2821 test method to show compliance to emission limits in UL 2818, Section 7.1.



**Environment**

UL Environment investigated representative samples of the identified Product(s) to the identified Standard(s) or other requirements in accordance with the agreements and any applicable program service terms in place between UL Environment and the Certificate Holder (collectively "Agreement"). The Certificate Holder is authorized to use the UL Environment Mark for the identified Product(s) manufactured at the production site(s) covered by the ULE Test Report, in accordance with the terms of the Agreement. This Certificate is valid for the identified dates unless there is non-compliance with the Agreement.

## GREENGUARD Certification Criteria for Mattresses, Bedding, Component Materials and Seating Units

Criteria	CAS Number	Maximum Allowable Predicted Concentration	Units
TVOC <sup>(A)</sup>	-	0.25	mg/m <sup>3</sup>
Formaldehyde	50-00-0	30.7 (25 ppb)	µg/m <sup>3</sup>
Total Aldehydes <sup>(B)</sup>	-	0.50	ppm
4-Phenylcyclohexene <sup>(C)</sup>	4994-16-5	3.25	µg/m <sup>3</sup>
Individual VOCs <sup>(D)</sup>	-	1/10th TLV	-

- (A) Defined to be the total response of measured VOCs falling within the C<sub>6</sub> – C<sub>16</sub> range, with responses calibrated to a toluene surrogate.
- (B) The sum of all measured normal aldehydes from formaldehyde through nonanal, plus benzaldehyde, individually calibrated to a compound specific standard. Heptanal through nonanal are measured via TD/GC/MS analysis and the remaining aldehydes are measured using HPLC/UV analysis.
- (C) Applicable to flooring and furniture, including component materials.
- (D) Allowable levels for chemicals not listed are derived from 1/10th of the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, and Cincinnati, OH 45211-4438).



**Environment**