Crosstek Membrane Technologies, LLC
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**November 17th, 2022**

**Crosstek Ultressa® CPM (Ceramic Pressure Membrane) NSF/ANSI 419 Approval: 3rd Party Cryptosporidium and Giardia Removal Challenge Testing Data and Factory Compliance**

***About US Environmental Protection Agency (EPA) Drinking Water Standards***

As of November 2022, Crosstek's Ultressa CPM ultrafiltration membranes comply with all EPA drinking water standards. The standards Crosstek Ultressa CPM achieved are summarized below:

NSF/ANSI/CAN 61–2019, Drinking Water System Components - Health Effects: this standard incorporates both the older NSF 61 and NSF 372 standards, and ensures that materials of construction of the Ultressa CPM complies with all national standards, and ensures specifically that components of the Ultressa CPM do not pose a health risk due to leaching chemicals into the public water supply.

NSF 419 (2018) - Public Drinking Water Equipment Performance - Filtration: was approved through ballot of the Public Drinking Water Equipment Performance (PDWEP) Joint Committee and was developed to serve drinking water stakeholders in the implementation of several EPA rules to reduce the risk of exposure to water-borne pathogens in drinking water. Products certified to NSF 419 (2018) have met the performance testing and non-testing requirements described in NSF 419 and NSF Certification General and Program Specific Policies. The non-testing requirements include an annual audit of the production location. This audit monitors for any unauthorized design or material changes to the products, and also monitors the manufacturer's internal quality control testing. NSF certification for performance requires the manufacturer to reset the manufacturing non-destructive performance test (NDPT) quality control release value (QCRV) to match the NDPT result measured by NSF that correlates with the observed Log Removal Value of the challenge testing ($LRV_{C\text{-}TEST}$). One major change in 2018 is that the DIT methodology has to be verified to be compliant with the EPA Membrane Filtration Guidance Manual, an omission in prior editions, that allowed a certification to be issued to a product which did not meet the requisite NDT requirements.

***Crosstek Ultressa CPM NSF/ANSI 419 Results***

$LRV_{C\text{-}TEST}$ = 5.02 average, 4.00 minimum for cryptosporidium and giardia
QCRV = 0.152 psi/minute, using pressure decay per EPA Membrane Filtration Guidance Manual
Maximum filtrate flux of 400 GFD / 75 GPM per module

Ultressa CPM membranes were tested without the assistance of coagulation and hence can operate with and without coagulants in public water treatment plants.

Ultressa CPM modules offer a direct replacement for most hollow fiber membranes, offering a more robust solution, which can increase production rate of existing membrane skids, and additional offers the removal of PFAS by addition of powdered activated carbon into the feed.

Ultressa CPM is the first silicon carbide membrane certified to NSF419 to Crosstek's knowledge. The highly hydrophilic and anionic surface of silicon carbide membranes address organic fouling optimally.

Please contact us with any questions or comments. Please find attached the NSF/ANSI 61 and NSF/ANSI 419 certificates and note the public listing of the certification on these certificates.

Stanton Smith
Vice President
Crosstek Membrane Technologies, LLC

# CERTIFICATE OF COMPLIANCE

| | |
|---|---|
| **Certificate Number** | MH65397 |
| **Report Reference** | MH65397-20211201 |
| **Date** | 2021-December-07 |
| **Issued to:** | Crosstek Membrane Technologies<br>900 Technology Park Drive<br>Suite 100<br>Billerica MA, 01821 US |
| **This is to certify that representative samples of** | DRINKING WATER SYSTEM COMPONENTS<br>See Addendum Page for Product Designation(s).<br><br>Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate. |
| **Standard(s) for Safety:** | See Addendum Page for Standard(s) |
| **Additional Information:** | See the UL Online Certifications Directory at https://iq.ulprospector.com for additional information |

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

# CERTIFICATE OF COMPLIANCE

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| **Certificate Number** | MH65397 |
| **Report Reference** | MH65397-20211201 |
| **Date** | 2021-December-07 |

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Trade Designation
USC, CNC
"Ultressa® CPM"

Standard(s):
NSF/ANSI/CAN 61–2019, Drinking Water System Components - Health Effects

Bruce Mahrenholz, Director North American Certification Program

UL LLC

# CERTIFICATE OF COMPLIANCE

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|---|---|
| **Certificate Number** | MH65843 |
| **Report Reference** | MH65843-20221116 |
| **Date** | 2022-November-16 |
| **Issued to:** | Crosstek Membrane Technologies<br>900 Technology Park Drive<br>Suite 100<br>Billerica MA, 01821 US |
| **This is to certify that representative samples of** | PUBLIC DRINKING WATER FILTRATION EQUIPMENT<br>"Ultressa® CPM"<br><br>Have been evaluated by UL in accordance with the Standard(s) indicated on this Certificate. |
| **Standard(s) for Safety:** | NSF 419 - Public Drinking Water Equipment Performance - Filtration |
| **Additional Information:** | See the UL Online Certifications Directory at https://iq.ulprospector.com for additional information |

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

Deborah Jennings-Conner

Deborah Jennings-Conner, VP Regulatory Services

UL LLC