

TECHNICAL DEPARTMENT COMMUNICATION

Bulletin No.: UPW - 001 (Document Circulation: √ General; √ Distributor; _ Internal & confidential)

PRODUCT: All INERTEX® 100% Expanded PTFE Products

SUBJECT: INERTEX® Products for Ultra Pure Water (UPW) Systems

Usage rates of Ultra Pure Water (UPW) in semiconductor industries are increasing. Selection of suitable gasket materials is critical, because leachables from such materials may adversely affect the quality of UPW. Leachables of concern are total organic carbon (TOC), silica, metals, and anions.

Analyte	Extractable (mg/in ²)	Analyte	Extractable (mg/in ²)
Fluoride (F ⁻)	<0.44	Lithium (Li ⁺)	<0.01
Chloride (Cl ⁻)	0.01	Sodium (Na ⁺)	0.01
Nitrite (NO ₂ ⁻)	<0.01	Ammonium (NH ₄ ⁺)	0.02
Phosphate (HPO ₄ ⁻)	<0.02	Potassium (K ⁺)	<0.02
Bromide (Br ⁻)	<0.02	Magnesium (Mg ⁺²)	<0.02
Nitrate (NO ₃ ⁻)	<0.02	Calcium (Ca ⁺²)	<0.01
Sulfate (SO ₄ ⁻)	<0.02		
		Total SiO ₂	<0.02
TOC	0.8	Dissolved SiO ₂	<0.04

The **INERTEX®** gasketing materials are 100% expanded virgin polytetrafluoroethylene (PTFE). They have been analyzed for leachables by Balazs Analytical Laboratory (Sunnyvale, CA). In these analyses, the gasket samples were extracted with UPW for a period of 7 days, at a ratio of 50 ml of leaching solution per in² of gasket surface area. The test results are summarized below:

The above test results show that **INERTEX®** gasketing materials are essentially free of leachables. Even for the highest extracted concentration shown, 0.8 µg TOC/in², it is only equivalent to 0.86 µg TOC/g of **INERTEX®** gaskets (i.e., less than one millionth per unit weight of the product). In addition, the ratio of exposed gasket area, i.e., the compressed edge profile of the gasket, to the fluid would be much smaller for gaskets in service than that under this laboratory testing condition.

In summary, the high purity of the **INERTEX®** materials coupled with their other superior properties, such as chemical inertness, low torque requirement, great sealability, and low creep/relaxation, make them the perfect choice for the UPW services.

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