

**Title** VNX Module Recycling and Disposal

**Date** March 2016

**Scope** This bulletin applies to all Ionpure VNX module variants.

This bulletin does NOT apply to other Ionpure CEDI modules such as LX, MX, or LabXT. Contact your local service provider for assistance. See **SB-2014\_01b** for information on LX module disposal.

**Purpose** There has been an increasing demand for a way to recycle Ionpure modules that have reached the end of their lives. The following service bulletin details the procedure for safe disassembly of VNX modules and the recycling or disposal of the product components.

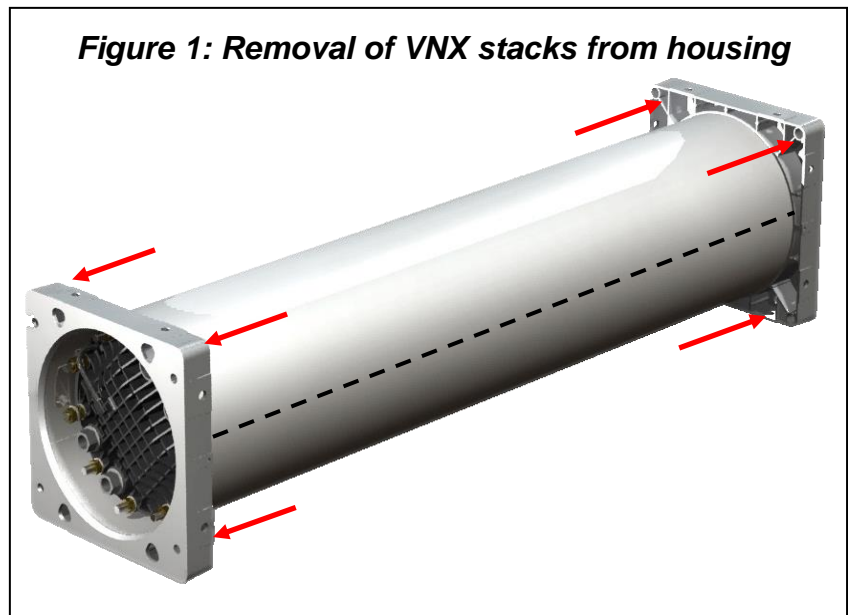
Recommendations on which materials can be recycled are included.

### Procedure

- 1) Disconnect DC Power to the module.
- 2) Perform a 5 minute flush at minimum to nominal flow with a 5% NaCl solution to exhaust the resin.
- 3) Flush the module with water at minimum flow for 5 minutes.

**NOTE:** Steps 2 & 3 must be performed even if the module was not in service prior to disposal.

- 4) Remove the module from the system.
- 5) Use a sledgehammer to remove the aluminum flexmounts from both ends of the fiberglass vessel. See red arrows in **Figure 1** for strike points.
- 6) Use a circular saw, set to  $\frac{1}{2}$ " (12mm) depth of cut to cut fiberglass housing vessel lengthwise on both sides of the module. See dotted line in **Figure 1**.



7) Remove C-brackets and interconnectors between the VNX stacks.

NOTE: This step does not apply to single-stack modules (VNX25, VNX28, VNX15CDIT)

8) With the stack(s) on their side, use a wrench to carefully loosen the nuts one at a time in a star pattern.

NOTE: Once a VNX module is disassembled it cannot be reassembled. DO NOT attempt to rebuild CEDI modules that have been taken apart.

### VNX Recycling Table

Table 1 below contains a material list of the components for all VNX modules. A recommendation on which materials can be recycled is included.

The key for the recycling tables is as follows:

**Yes** - The material can be recycled or scrapped.

**Maybe** - It is unknown if the material can be recycled. Municipal recycling centers may not take these materials. There may be private recycling companies that will accept them.

**No** - The material must be disposed of as normal (non-hazardous) waste and cannot be recycled.

- For additional information on metal recycling visit:  
<http://minerals.usgs.gov/minerals/pubs/commodity/recycle/recymyb01.pdf>

**Table 1 – Recycling table for VNX**

<b>Component</b>	<b>Material</b>	<b>Recyclable</b>
Dilute spacer (non-CDIT)	Glass-filled polypropylene	<b>Maybe</b>
Dilute spacer (CDIT)	Terblend	<b>Maybe</b>
Concentrate spacer	Terblend	<b>Maybe</b>
End block gasket	Silicone rubber compound	<b>Maybe</b>
End Block	Glass-filled Noryl	<b>Maybe</b>
Dilute and conc port O-rings	Santoprene	<b>Maybe</b>
Resin compartment O-rings	Santoprene	<b>Maybe</b>
Anion exchange resin 1	Styrene/DVB, strong base Type I	<b>No</b>
Anion exchange resin 2	Styrene/DVB, strong base Type II	<b>No</b>
Cation exchange resin	Styrene/DVB, strong acid	<b>No</b>
Anion exchange membranes	Heterogeneous: PE/AER	<b>No</b>
Cation exchange membranes	Heterogeneous: PE/CER	<b>No</b>
Anode electrode	Platinized Titanium	<b>Yes</b>
Cathode electrode	316 stainless steel	<b>Yes</b>
Tie bars	316 Stainless Steel	<b>Yes</b>
Housing flex-mounts	Aluminum	<b>Yes</b>
Housing vessel	Fiberglass (FRP)	<b>Maybe</b>
Stack interconnectors	Polypropylene	<b>Yes</b>
C-Bracket	Electro-galvanized cold-rolled steel	<b>Yes</b>
Wiring	Copper	<b>Yes</b>
Junction box	Polycarbonate	<b>Yes</b>
Junction box supports	Aluminum	<b>Yes</b>
Miscellaneous hardware (nuts, screws, etc.)	316 Stainless Steel or Brass	<b>Yes</b>