



# Burkhart Roentgen International, Inc.

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Design, Manufacture and Distribution of X-ray Protective Medical Device Aprons, Thyroid Shields and Table Covers; Apron/Thyroid Shield Rentals.

## **ZERO LEAD “NL” (‘No-Lead’) Grade - Series 800 Technical Description & Specification**

**ZERO LEAD “NL”** is a lead-free, super-lightweight, flexible and recyclable x-radiation protection material, using a mixture of two attenuating elements, antimony and tungsten, in a mixture optimized for minimum area-weight and maximum attenuation in the key diagnostic imaging range of 80 – 100 kV.

### **“K-Edge Technology”**

The lighter weight (lead-vinyl is **32% heavier**) results from the use of the two attenuating elements, where the antimony provides more efficient attenuation of that portion of the photon spectrum below the K-edge window of lead ( 35 - 88 keV), complemented by the higher Z element tungsten, which is more efficient for stopping higher energy radiation ( > 69 keV), and also covers the K-edge window of antimony (< 35 keV).

### **Combined with Advanced Polymer Technology**

The attenuating elements, in fine powder form, are supported, encapsulated and homogeneously distributed in a tough-but-flexible, high-tech plasticized Dow elastomer matrix. This Dow-DuPont developed elastomer carrier was selected in 2012 after a year’s R&D as having the best balance of toughness, flexibility, durability, and cracking resistance, and is more commonly used for flexing components (running shoes, wire & cable etc.).

### **Environmental Benefits**

The lead-free material is not “cross-linked” (or “cured”) and is therefore fully recyclable, and thermally re-processable, or may be disposed of as a non-hazardous, non-toxic waste, in municipal landfills.

### **Specifications**

Area-weight **5.40 kg/ sq m** (9.9 lb/ sq yd) for 0.50 mm Pb equivalence (80-100 kV\*)

Protection 0.50 (4-ply), 0.35 (2-ply) and 0.25 (2-ply) mm Pb equivalence \*

Transmissions 80 kV 0.50mm 2.1% 0.35mm 4.5% 0.25 mm 8.2%

(Direct beam) 100 kV 6.2 % 11.3 % 17.9%

**\*Test Method** IEC 1331-1/ EN 61331-1, 80 kV (0.15 mm Cu) & 100 kV (0.25 mm Cu), narrow Tolerances - 7%/ +2% (thickness, weight and mm Pb), within DIN EN 61331-3 limits