

**ECOMASS<sup>®</sup> COMPOUND**  
**1700TU96**  
**RADIATION SHIELDING TEST RESULTS**  
**(COMPARED TO LEAD)**

**125 keV X-rays (10 milli-amp-sec)**

Test Apparatus or Detector	Ecomass Shielding Effectiveness vs. Lead
Avg. Densitometer Readings - Exposure on Standard Radiographic Film	92%

**<sup>60</sup>Co (0.318 MeV  $\beta^-$ , 1332.5 keV  $\gamma$ , 1173.2 keV  $\gamma$ )**

Test Apparatus or Detector	Ecomass Shielding Effectiveness vs. Lead
Gas Flow	107%
HPGe	109%
Victoreen (on contact)	106%

**<sup>198</sup>Au (0.962 MeV  $\beta^-$ , 411.8 keV  $\gamma$ )**

Test Apparatus or Detector	Ecomass Shielding Effectiveness vs. Lead
Gas Flow	100%
HPGe	87%
Victoreen (on contact)	87%
Ludlum 17 (with beta shield)	85%

**<sup>18</sup>F (0.635 MeV  $\beta^+$ ; 511 keV  $\gamma$  peak used for measurements)**

Test Apparatus or Detector	Ecomass Shielding Effectiveness vs. Lead
HPGe	90%
Victoreen (on contact)	83%

**<sup>192</sup>Ir (0.672 MeV  $\beta^-$ , 0.540 MeV  $\beta^-$ , 468.1 keV  $\gamma$ , 316.5 keV  $\gamma$ )**

Test Apparatus or Detector	Ecomass Shielding Effectiveness vs. Lead
Gas Flow	96%
HPGe	91%
Victoreen (on contact)	87%
Ludlum 9 (with beta shield)	92%

**<sup>32</sup>P (1.709 MeV  $\beta^-$ )**

Test Apparatus or Detector	Ecomass Shielding Effectiveness vs. Lead
Gas Flow	100%
Victoreen (on contact)	98%
Ludlum 17 (with beta shield)	97%

<sup>99m</sup>Tc (0.435 MeV β<sup>-</sup>, 140.5 keV γ)

Test Apparatus or Detector	Ecomass Shielding Effectiveness vs. Lead
Gas Flow	100%
HPGe	99%
Victoreen (on contact)	99%
Ludlum 17 (without beta shield)	100%

<sup>201</sup>Tl (167.4 keV γ, 135.3 keV γ)

Test Apparatus or Detector	Ecomass Shielding Effectiveness vs. Lead
Gas Flow	100%
HPGe	98%
Victoreen (on contact)	99%

<sup>133</sup>Xe (0.346 MeV β<sup>-</sup>, 81.0 keV γ)

Test Apparatus or Detector	Ecomass Shielding Effectiveness vs. Lead
Gas Flow	100%
HPGe	100%
Victoreen (on contact)	100%
Ludlum 9 (with beta shield)	100%

<sup>129</sup>I (39.6 keV γ)

Test Apparatus or Detector	Ecomass Shielding Effectiveness vs. Lead
HPGe	100%

Tests performed at the Nuclear Science Center at Texas A&M University

**Gas Flow Tests:** Tests performed using a gas proportional counter which is primarily sensitive to beta particles but is also sensitive to gamma radiation. Average error is ±5%.

**HPGe Tests:** A High Purity Germanium Detector was used for these tests. This detector is sensitive only to gamma radiation, but has a very high efficiency. Average error is ±2%.

**Victoreen Tests:** Tests performed using a handheld Victoreen Model 450P detector. This detector is a pressurized ion chamber and is sensitive to gamma radiation and high energy beta particles. Average error is ±20%.

**Ludlum Tests:** Tests performed using a handheld Ludlum Model 9 or 17 detector. These detectors are unpressurized ion chambers which are sensitive to both gamma radiation and beta particles. Ludlum detectors can be used with or without a beta shield in place. Average error is ±20%.

Ecomass<sup>®</sup> Compounds are a patented line of nontoxic, high-density, composite materials.

Ecomass<sup>®</sup> Compounds are manufactured by Technical Polymers, LLC under a world-wide license.

For additional information contact:

Robert Durkee

Ecomass Technologies

877. ECOMASS (326.6277)

[durkee@ecomass.com](mailto:durkee@ecomass.com)