

We are proud to offer two unique, research-grade polymer reference materials designed to support environmental science, method development, and microplastic analysis

Why Choose HPU CMDR's Materials?



Traceable & Transparent: Each material comes from a single lot which is characterized using FTIR and Raman microscopy, particle sizing, SEM, pyrolysis-GC/MS and more



Collaborative Network: Connect with researchers around the world via our Polymer Kit Network



Mission-Driven: Your purchase directly supports marine debris research and student training

Each purchase includes:

- ✓ High-purity LDPE particles (spherical or irregular), both ~10 μm in size
- ✓ Dry powder in secure vial
- ✓ Detailed Report of Analysis (≥ 10 characterization metrics)
- ✓ Invitation to join the Polymer Kit Research Network (Google Group)
- ✓ Support from HPU CMDR's expert team



The production and testing of this kit was supported by the American Chemistry Council, National Institute of Standards and Technology, and Thermo Fisher Scientific



[Order Here](#)

Pricing

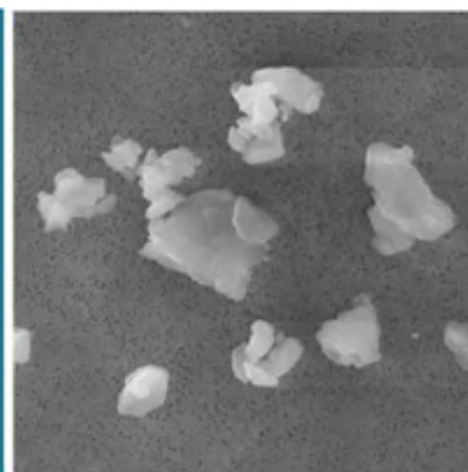
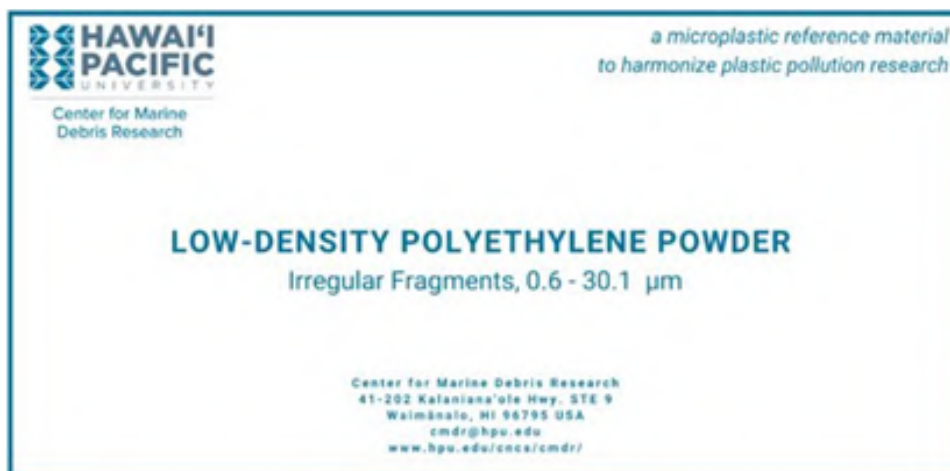
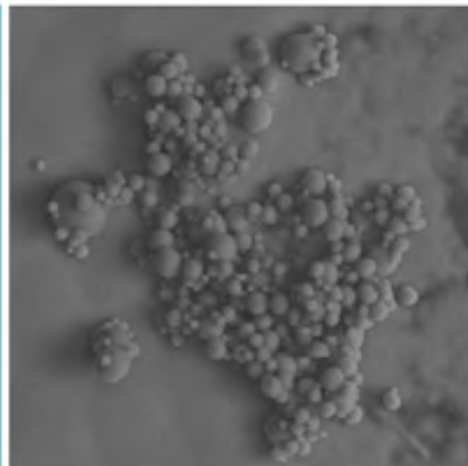
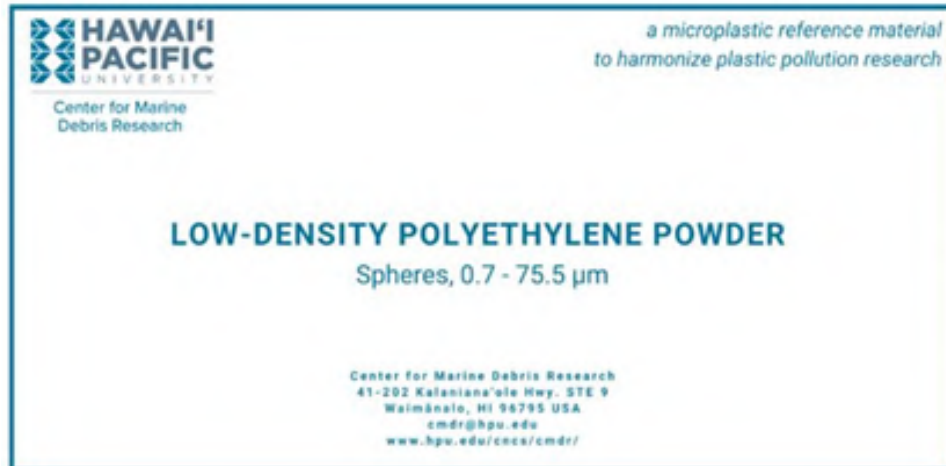
2 g = \$400

100 g = \$2,500

2,000 g = \$15,000

Price for 2 g and 100 g includes
U.S. standard shipping
Price for 2 kg is quoted
separately

LDPE Reference Material | Center for Marine Debris Research



Also includes a USB stick with containing a comprehensive suite of characterizing analytics:

- Written Report of Analysis for LDPE Spheres and LDPE Irregular Fragments
- Data for the following instruments
 - Micro-FTIR spectra in .spa and .png file types
 - Raman spectra in .wdf and .png file types
 - Py-GC/MS spectra in .D file type
 - ATR FTIR spectra in .spa and .png file types
 - DSC melt curves in .spa and .png file types
- Instructions on how to register for a listserve with others that have the same kit.

Warning - This product may cause combustible dust concentrations in air.

Warning - Inhalation danger. A proportion of the material consists of particle sizes that can penetrate deep into the lungs.

Highlights

Measurand	Spheres	Irregular fragments
Particle Size	Range = 0.7 to 75.5 μm Average $\pm$ SD = 7.65 $\pm$ 4.11 μm	Range = 0.6 to 30.1 μm Average $\pm$ SD = 4.6 $\pm$ 2.9 μm
Elemental Composition	Mostly carbon and oxygen	Mostly carbon and oxygen
Surface Area	2.004 m ² /g	3.798 m ² /g
Density	0.928 g/cc	0.953 g/cc
Polymer Identity	Low-density polyethylene	Low-density polyethylene
Peak Melt Temperature	109.45 - 111.00 $^{\circ}\text{C}$	97.34 - 102 $^{\circ}\text{C}$
Crystallinity	61.4 %	61.4 %
Crystallization Temperature	96.93 $^{\circ}\text{C}$	96 $^{\circ}\text{C}$
Crystalline Structure Comparison	Consistent with polyethylene	Consistent with polyethylene
Molar Mass Distribution	Mn = 20,400 g/mol Mw = 174,100 g/mol $\bar{D}$ = 8.54	Mn = 680 g/mol Mw = 1,100 g/mol $\bar{D}$ = 1.60
Organic Plastic Additives	See ROA	See ROA
Trace Metal Concentrations	<reporting limit for Hg, Al, Sb, As, Ba, Cd, Cr, Pb, Se, Ag, Ti, V, and Zr	<reporting limit for Hg, Sb, As, Ba, Cd, Cr, Pb, Se, Ag, V, and Zr 42.7 mg/kg Al 3.11 mg/kg Ti