PNRI was granted a utility model for the technology in 2019. The non-woven fabric later won first place for the Outstanding Utility Model category during the 2020 National Invention Contest and Exhibits.

The product is an output of a project funded by the DOST-Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) in collaboration with DOST-Philippine Textile Research Institute (PTRI) which provided the abaca/polyester nonwoven fabric.

For more information, please contact:

DR. LUCILLE V. ABAD
Chief, Atomic Research Division
and Career Scientist III
Tel. No. 8929-6011-19 loc. 228

DR. JORDAN F. MADRID
Head, Chemistry Research Section
Tel. No. 8929-6011-19 loc. 234

COLLABORATING AGENCY:
DOST-Philippine Textile Research Institute

FUNDED BY:
DOST-Philippine Council for Agriculture,
Aquatic and Natural Resources Research
and Development

Department of Science and Technology
PHILIPPINE NUCLEAR RESEARCH INSTITUTE

Commonwealth Avenue, Diliman, Quezon City
PNRI Trunkline: (632) 8929-60-10 to 19

pnri.dost.gov.ph

facebook.com/PNRIDOST

RADIATION-GRAFTED ABACA NON-WOVEN FABRIC

to filter heavy metal pollutants

WHY ABACA?

- The Philippines remains the world's largest producer of abaca, accounting for around 85% of the global production.
- Abaca is very useful and readily available.
- Using the natural fibers of abaca, the Department of Science and Technology-Philippine Nuclear Research Institute (DOST-PNRI) developed a composite nonwoven fabric that can filter heavy metals dissolved in liquid.
- Abaca's natural strength withstands the radiation grafting procedure.

Photos from the Department of Agriculture

Metals such as lead, cadmium, nickel, chromium, mercury and arsenic are hazardous to health and environment

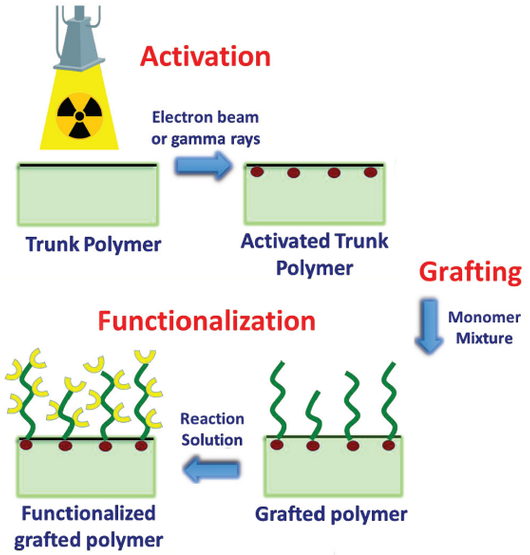
RADIATION GRAFTING

Radiation can be used to modify materials and graft various polymers with advanced properties.

Electron beams or gamma rays are used to activate the base material, allowing the grafting of other polymers.

The abaca is irradiated at the PNRI Electron Beam Irradiation Facility, after which it is further processed with synthetic polymers into its final form as a filter for heavy metals.

The Electron Beam Irradiation Facility at DOST-PNRI

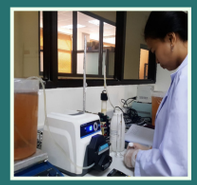


ADVANTAGES

- REUSABLE!
- CHEAPER than commercial resins!
- On par, if not BETTER in filtering the waste!

OTHER APPLICATIONS OF RADIATION GRAFTING

- Recovery of precious metals such as rare earth elements



- Catalyst for producing biodiesel