



# Ferroelectric Polymers from Dehydrofluorinated PVDF

TECHNOLOGY NUMBER: 6923

## OVERVIEW

Unprecedented piezoelectric properties without mechanical stretching.

## INNOVATION

Polyvinylidene fluoride (PVDF) and its copolymers are electroactive materials but have required mechanical stretching post-processing to induce the ferroelectric beta-phase. The 300-400% elongation required limits the applications and processability of PVDF materials.

Researchers at UM have developed a pre-processing method to increase beta-phase formation in PVDF without mechanical stretching. The modified PVDF displays unprecedented piezoelectric properties with a measured  $d_{33}$  coefficient of -72 pm/N and a calculated  $g_{33}$  coefficient of 41 Vm/N. Eliminating the need for mechanical stretching greatly improves the roll-to-roll processability of the material and opens up alternative processing methods including 3D printing and injection molding. Printed electronics, new transducer designs and other applications are now possible with this modified PVDF.

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## Category

Materials

Engineering & Physical Sciences

## Inventor

Henry Sodano

Jiajun Lin

## Further information

Jeremy Nelson

[jernelso@umich.edu](mailto:jernelso@umich.edu)

## [View online](#)

