



A few years ago a bunch of newspaper editors had a big meeting, and I got invited. They passed out party favors – a shiny mug with gold printing on the outside. It was perfect for my tea. I stuck my new mug into a microwave oven to warm it up. Big mistake! It started sparking and popping and lighting up. The tiny metal logo had corners and points that sparks could jump across.



Dear Beakman,
If you put metal into a microwave oven, will it explode?

Tom Haynes
Hagerstown, Maryland

Beakman or Jax
P.O. Box 30177
Kansas City, MO 64112
Questions, name & address

For asking today's question, Tom wins the new DVD, *The Best of Beakman's World*.

Dear Tom,
Micro-radiowaves cook by getting food molecules to jump around and get hot. This radio energy does different things to metals or the shiny metallic paint on some dishes. It can make dangerous sparks. Microwave energy pushes electrons through metal. Different parts of the metal paint get different electrical charges. Sparks jumping between different parts of the metal balance out the charges. But their intense heat can also wreck the dish or even melt the whole oven.

Beakman
Beakman Place

The sparking generated heat, and parts of the foil peeled off and wrecked the whole mug. If I'm good, maybe someday the editors will invite me to their next big meeting and I could get another mug. In the meantime, learn from my stupid mistake, and don't put metal or dishes with foil paint into a microwave oven.

P.S. from Jax: Those twist-ties for plastic bags sometimes include tiny wires that can surprise you with sparks inside a microwave oven. Be careful with that stuff.

Experiment #1

WHAT YOU NEED: Bar of soap - plate - help and permission from grown-up - microwave oven

WHAT TO DO:

Ask your grown-up helper to put the soap on a plate and nuke it on high for 2 minutes. Watch while it happens.

If you don't see something kind of intense, keep nuking it more in 1-minute chunks.

Do NOT touch the soap. It will be hot.

WHAT IS GOING ON:

The radio waves in the oven got the water molecules in the bar of soap to jump around. That got things hot, and the water expanded into steam, which blew the soap up to about 5 times its usual size.

SO WHAT:

Well, OK. This doesn't have much to do with sparks on dishes. But sparks in microwaves are very dangerous. So I just avoided the whole issue by giving you something weird to look at.

