mesotetraphenylporphyrin $\xrightarrow[-2\,H^+]{Ni^{2+}}$ incorporation of a metal ion into tetraphenylporphyrin

Objectives

- Synthesize a metalloporphyrin containing Zn^{2+} or Ni^{2+}
- Examine the differences in physical data collected for metalloporphyrins that contain the same chelating ligand but different bound metal ions

Reagents

	mass	safety
meso-tetraphenylporphyrin	614.74 g/mol	—
DMF	solvent 73.09 g/mol	irritant + causes severe organ disorders
Ni(II) acetate tetrahydrate metal complex	248.84 g/mol	carcinogen
~~Zinc acetate dihydrate~~		

1:1 ratio

$$.813\ \text{mmol} = \frac{.000813\ \text{mol} \mid 614.74\ \text{g/mol}}{\text{mol}} = .49978\ \text{g m-tpp.phyrin}$$

.500 g (used .501 g)

$$.000813(1.3) = \frac{.0010569\ \text{mol} \mid 248.84\ \text{g}}{\text{mol}} = .2629\ \text{g} = .263\ \text{g Ni salt}$$

(used .264 g)

$$\frac{.813\ \text{mmol product} \mid 671.43\ \text{g}}{\text{mol}} = .5458\ \text{g product} = \text{theoretical yield}$$