

BROMINATION OF TOLUENE REPORT FORM

Name _____ Drawer Number _____

Date _____ Lab Section _____ Instructor _____

Write the complete **mechanism** for the reaction between toluene and bromine to produce *p*-bromotoluene (ignore *m*- and *o*- products). Include mechanism arrows; non-bonding electrons; formal charges; the role of the catalyst in the reaction; and all resonance contributors for the arenium ion intermediate.

The color change of the pH paper during reaction should have been from blue to red. With respect to the mechanism above, explain this observation.

Quantities used in the reaction (show calculations on a separate lab notebook page):

Density of toluene¹ _____ g/mL Density of bromine² _____ g/mL

M.W. of toluene³ _____ g/mol M.W. of bromine⁴ _____ g/mol

Toluene (from mass) _____ g _____ mole

Toluene (from volume) _____ g _____ mole

Bromine (from volume) _____ g _____ mole

over →

Table of Results

Bromotoluene isomer	Peak Area (triangulation) cm²	Mole % (calc. from triangulation)	Mole % (statistical prediction)	Mole % (fr. equilibrium exp.)
<i>ortho</i>				
<i>meta</i>				
<i>para</i>				
Toluene		Do not include	Do not include	Do not include

Citations for physical properties (Use citation numbers 1-4, as shown superscripted on the first page, for citing the densities and M.W.'s of toluene and bromine. See the Lab Manual for instructions regarding correct and approved citations.

1.

2.

3.

4.

Attach experimental IR spectrum, calculations, and written report to Report Form.

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