Grading Rubric for n-butyl bromide synthesis Lab Report

 ***SN2 mechanism of reaction of n-butanol with Br - to form n-butyl bromide***

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| **Section** | **Description** | **Score** | **Section** **Total** |
| **Theory** | step 0 Protonation of alcohol * protonation is equilibrium
* shifts right with reflux, H+
* H+ is from H2SO4 which forms HBr
* H+ consumed and is formally from HBr

….protonated alcohol is what `attracts’ Br-  | \_\_\_\_\_/2\_\_\_\_\_/3\_\_\_\_\_/3\_\_\_\_\_/3 | \_\_\_\_\_/11 |
| step 1 formation of 5-coordinate complex and ejection of H2O* which is nucleophile ? (Br-) and why ?
* explain notion of rate limiting
* bimolecularity (why SN2)
* electron motion (curved arrow pix with lone pairs)
	+ - * 5-coordinate activation state pix & description (inversion
			* 5 coordination is non-lewis and accounts for high barrier
* leaving group and role of solvent
	+ - * rearrangements ? (none…why not ?)
 | \_\_\_\_\_/2\_\_\_\_\_/3\_\_\_\_\_/4\_\_\_\_\_/4\_\_\_\_\_/3\_\_\_\_\_/3\_\_\_\_\_/3\_\_\_\_\_/3 | \_\_\_\_\_/25 |
| text and diagrams are closely linked/ diagrams well-labeled | \_\_\_\_\_/4 | \_\_\_\_\_/4 |
| **Workmanship** | neatness, English (grammar, spelling, tense…) aptness of phrasing and description, evidence of effort | \_\_\_\_\_/5 | \_\_\_\_\_/5 |
| **Total** |  |  | \_\_\_\_\_/45 |