A Highly Active Trivalent Iodine Compound for Oxidation Reactions

**ABBX**

CH$_3$C=O$^-$I$^-$O

1g [A2678]

**Advantages**

- Powerful Oxidizing Ability (superior to that of iodobenzene diacetate (PIDA))
- Easy Oxidation of Benzylic Alcohols and Aliphatic Secondary Alcohols
- Easy Removal Process for Co-product (5-bromo-2-iodobenzoic acid)

ABBX [A2678] is a highly active trivalent iodine compound, developed by Togo et al.\(^1\) A2678 oxidizes benzylic alcohols and aliphatic secondary alcohols to the corresponding aldehydes and ketones in good yields from simple extraction of the reaction mixture. 5-Bromo-2-iodobenzoic acid, formed as a co-product of this reaction, can be recovered by acidification of the aqueous layer.

**Reaction Examples**

**Oxidation of Alcohols to Aldehydes / Ketones using A2678**

<table>
<thead>
<tr>
<th>Alcohols</th>
<th>A2678 (2.0 eq.) or ABX (2.0 eq.) or PIDA (2.0 eq.)</th>
<th>CHCl$_3$ 60 ºC, 24h</th>
<th>Aldehydes or Ketones</th>
<th>Yield [Purity]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohols</td>
<td>A2678</td>
<td>90% [90%]</td>
<td>Aldehydes or Ketones</td>
<td>ABX = 1-acetoxy-1,2-benziodoxol-3(1H)-one</td>
</tr>
<tr>
<td></td>
<td>ABX</td>
<td>88% [87%]</td>
<td></td>
<td>PIDA = Iodobenzene Diacetate</td>
</tr>
<tr>
<td></td>
<td>PIDA</td>
<td>32%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A2678</td>
<td>78% [76%]</td>
<td></td>
<td>ABX = 19%</td>
</tr>
<tr>
<td></td>
<td>PIDA</td>
<td>19%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Reference**


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