

## The Synthesis of Tertiary Amides by the Reaction of Adducts of Schiff Bases and Acyl Chlorides with Allylsamarium Bromide

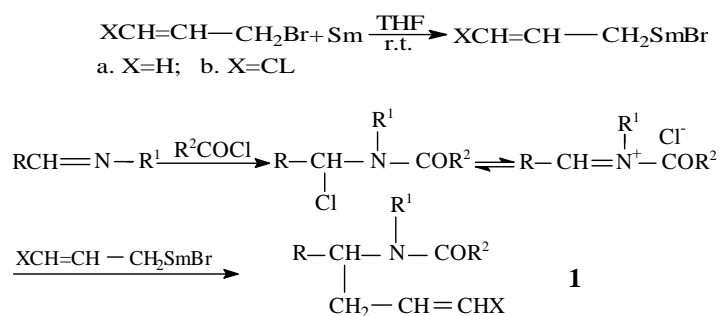
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**Abstract:** Adducts of Schiff bases and acyl chlorides react with allylsamarium bromide to afford the corresponding tertiary amides.

**Keywords:** Allylsamarium bromide; tertiary amides; Schiff bases; acyl chloride, synthesis.

Samarium diiodide is an excellent electron transfer agent<sup>1-2</sup>. The application of samarium metal in organic synthesis has stimulated great interest recently<sup>3-5</sup>. Curran first reported the samarium Grignard reaction<sup>6</sup>. Allylmagnesium bromide is usually accompanied with a great quantity of coupling by-product in preparation<sup>7</sup>. However allylsamarium bromide is not so active as allylmagnesium bromide, it does not give rise to coupling during preparation. Our group has studied the synthesis of allyl selenides<sup>8</sup> and sulfides<sup>9</sup> by allylsamarium bromide and the synthesis of homoallylamines by the addition of allylsamarium bromide to nitrile<sup>10</sup>. Adducts of imines and acyl chlorides as reactive electrophilic reagents have been successfully used in the intra and intermolecular  $\alpha$ -amidoalkylation reaction for the synthesis of different N-heterocyclic compounds<sup>11-12</sup>. Herein we wish to report the reaction of allylsamarium bromide with adducts of imine and acyl chlorides to afford tertiary amides. The products were identified by EA, IR, <sup>1</sup>H NMR and MS spectra. The advantages of this method are rapid reaction and simple operation. The results were summarized in **Table 1**.



**Table 1.** Yields of Tertiary Amides (1)

No.	R	R <sup>1</sup>	R <sup>2</sup>	Yield (%)
1 <sup>a</sup>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	42
2 <sup>a</sup>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	C <sub>3</sub> H <sub>11</sub>	46
3 <sup>a</sup>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>	82
4 <sup>a</sup>	p-CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	38
5 <sup>a</sup>	p-CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub>	C <sub>6</sub> H <sub>5</sub>	C <sub>3</sub> H <sub>11</sub>	41
6 <sup>a</sup>	p-CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub>	C <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>	76
7 <sup>a</sup>	p-ClC <sub>6</sub> H <sub>4</sub>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	44
8 <sup>a</sup>	p-ClC <sub>6</sub> H <sub>4</sub>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	47
9 <sup>a</sup>	p-ClC <sub>6</sub> H <sub>4</sub>	C <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>	84
10 <sup>a</sup>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	C <sub>6</sub> H <sub>5</sub>	69
11 <sup>a</sup>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	C <sub>3</sub> H <sub>11</sub>	71
12 <sup>a</sup>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	CH <sub>3</sub>	56
13 <sup>a</sup>	C <sub>6</sub> H <sub>5</sub>	n-C <sub>3</sub> H <sub>7</sub>	CH <sub>3</sub>	52
14 <sup>a</sup>	C <sub>6</sub> H <sub>5</sub>	n-C <sub>4</sub> H <sub>9</sub>	C <sub>6</sub> H <sub>5</sub>	54
15 <sup>b</sup>	C <sub>6</sub> H <sub>5</sub>	C <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>	78
16 <sup>b</sup>	p-CH <sub>3</sub> C <sub>6</sub> H <sub>4</sub>	C <sub>6</sub> H <sub>5</sub>	CH <sub>3</sub>	76
17 <sup>b</sup>	C <sub>6</sub> H <sub>5</sub>	n-C <sub>4</sub> H <sub>9</sub>	C <sub>6</sub> H <sub>5</sub>	49

\*Yield of isolated product. \*\*a, X=H ; b, X=Cl.

General Procedure: Samarium (0.33g, 2.2 mmol), THF (20 ml), allyl bromide (0.30g, 2.5 mmol) were stirred at room temperature under nitrogen. The stirring was continued until the samarium powder disappeared (1 h). Adducts of Schiff bases and acyl chlorides were added to the solution, and the mixture was stirred for 1h at room temperature under nitrogen. After work-up, the crude product was purified on TLC.

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