Molecules **1999**, *4*, M102

Explosion of 4-Acetylamino-2,2,6,6-tetramethylpiperidine-1-oxoammonium Perchlorate and Replacement by Tetrafluoroborate

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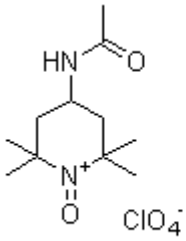
Received: 17 June 1999 / Published: 5 September 1999



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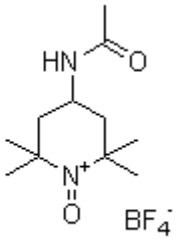

2

In December, 1998, I published a paper (*J. Org. Chem.* **1998** *63* , 9367) describing the synthesis and reactions of two oxoammonium salts, 4-acetylamino-2,2,6,6-tetramethylpiperidine-1-oxoammonium perchlorate (**1**) and tetrafluoroborate (**2**). These salts are non-heavy metal, colorimetric oxidizing agents for the conversion of alcohols to aldehydes or ketones in essentially quantitative yields with minimal work-up procedures [1,2].

Almost all of the experimental procedures described were related to the perchlorate **1**, although the oxidants **1** and **2** seemed to have nearly identical properties. The air-dried perchlorate has been used for about six years and was thought to be quite stable. However, when an 8 g. sample was dried over P_2O_5 under high vacuum at 55°C., it detonated. Damage was minimal, but the explosion was quite violent.

Those who might have prepared a supply of the perchlorate are urged to destroy it by dissolving it in water and reducing it with ethanol and $NaHCO_3$ as described in the paper.

The tetrafluoroborate **2** is quite stable up to at least 95°C. under the conditions described above and has the same outstanding oxidizing properties as the perchlorate.

Acknowledgment: Partial financial support was provided by the National Science Foundation (Grant CTS-9632391).

References

1. Bobbitt, J. M. Oxoammonium Salts. 6. 4-Acetylamino-2,2,6,6-tetramethylpiperidine-1-oxoammonium Perchlorate: A Stable and Convenient Reagent for the Oxidation of Alcohols. Silica Gel Catalysis. *J. Org. Chem.* **1998**, *63* , 9367-9374.

2. See ref. 1 and relevant papers cited therein.

Sample Availability: 4-Acetylamino-2,2,6,6-tetramethylpiperidine-1-oxoammonium tetrafluoroborate (**2**) is available from MDPI, MDPI 17072.