N-Nitrosamines

Introduction

In 2018, nitrosamine impurities became a focus for authorities, when a recall of angiotensin II receptor blocker (ARB) medicines, known as “sartans”, was announced. In bioactive compounds, a toxic impurity, *N*-nitrosodimethylamine (NDMA), was found. Since then, more cases of drug product batches contaminated with nitrosamines came to be known (Ranitidine, Nizatidine and Metformin). In 2020, FDA announced the availability of a guidance for industry, entitled “Control of *N*-Nitrosamine Impurities in Human Drugs.”[1] In this context, Enamine offers a library of various nitrosamines for investigation.

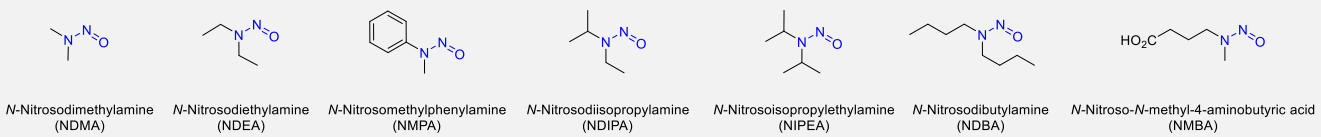
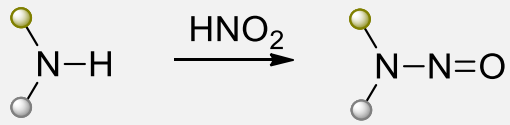


Figure 1. Chemical structures of 7 potential nitrosamine impurities in APIs and drug products identified by FDA in 2020.

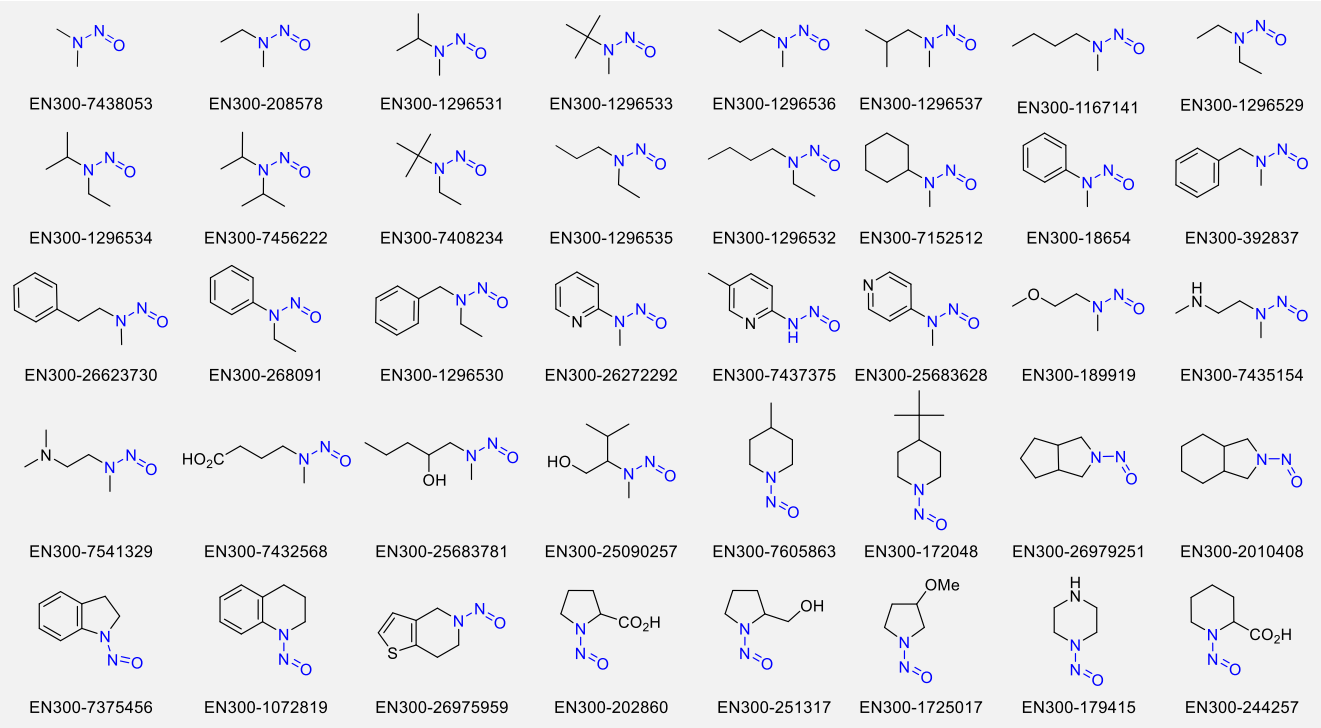
Case studies



- Nitrosamine compounds can form by a nitrosating reaction between amines and nitrous acid.
- Nitrosamine compounds are potent genotoxic agents in several animal species and some are classified as probable or possible human carcinogens.[1-4]

Figure 2. Representative reaction to form nitrosamines.

We offer: more than 50 of nitrosamines from stock on a 5-10 g scale.



References

1. https://www.fda.gov/regulatory-information/search-fda-guidance-documents/control-nitrosamine-impurities-human-drugs.
2. https://ntp.niehs.nih.gov/ntp/roc/content/profiles//nitrosamines.pdf
3. N.T. Crosby et al. *Adv. Food Res.* **1976**, *22*, 1.
4. I. W. Ashworth et al. *Org. Process Res. Dev.* **2020**, *24*, 1629.