

# Nitrosamine Risk Assessments

The understanding of the process chemistry with respect to the risk of API containing N-Nitrosamines as impurities is essential to ensure patient safety and meet regulatory requirements. Sai Life Sciences has a robust end to end process to assess risk and support customers in the development of control strategies.

## Highlights

- Robust risk assessment process as part of the quotation, manufacture and lifecycle management stages.
- Vendor assessment process covering raw materials and starting materials.
- Ongoing risk assessment process to mitigate any risk of N-Nitrosamine contamination as a result of the utilisation of process equipment.
- Expertise in process chemistry to understand and mitigate the risk of N-Nitrosamine formation.
- Expertise in the utilisation of in-silico purge calculations and spiking/purge studies to support control strategy development.
- State of the art analytical instrumentation and expertise capable of meeting regulatory requirements for the control of N-Nitrosamines.
- Capability to carry out Mutagenicity testing (Non-GLP Studies such as; Ames, In Vitro Chromosome Aberration Assay, and In Vivo Micronucleus Test) and support the establishment of ADIs for other N-Nitrosamines.

## Achievements

- 100+ projects (RM, KSM, intermediates and API) were assessed and evaluated by Expert Panel Team at Sai and provided N-Nitrosamine Assessment reports for regulatory requirement as per client request
- Synthetic route designs which eliminate the risk of N-nitrosamine formation by either elimination of sources of amines/nitrite or phasing their introduction into the route.
- Utilisation of purge calculations to inform the approach to regulatory control strategies.

## State of the art analytical Instrumentation

- Sciex LC-MS/MS ion trap
- Shimadzu GC-MS/MS ionTrap



- Established methodology and expertise to determine the six regulatory specified N-Nitrosamine impurities (NDMA, NMBA, NDEA, NDBA, DIPNA and EIPNA) with a quantification limit of 10ppb.
- Flexibility to extend the approach to other N-Nitrosamines of interest.