Confidently address nitrosamines risk mitigation

Explore viable strategies with dsm-firmenich

dsm-firmenich

Your purpose-led, innovation partner for nitrosamine risk mitigation

Navigating nitrosamine risk mitigation is an unprecedented challenge for the pharmaceutical industry. Identifying the best approach for nitrosamine risk mitigation requires a comprehensive understanding of the active pharmaceutical ingredient (API) and manufacturing process, and to bring safer drug products to market, extensive formulation and regulatory insight is critical.

As a purpose-led, innovation partner in the pharmaceutical industry, dsm-firmenich is here to help you secure the best mitigation strategy for your drug product. We can assist you with high-quality ingredients, customized solutions backed by data and expert services – tailored to your individual portfolio.

Why nitrosamine mitigation matters

Every pharmaceutical manufacturer is responsible for assessing the possible contamination of nitrosamines in their drug products, or risk facing serious consequences. When nitrosamine impurities were first detected in 2018, commonly prescribed drugs, such as Ranitidine, Valsartan and Metformin, were recalled, putting patients in danger of not receiving critical medication. At present, drug developers are still facing impurities above the acceptable intake limit.

To prevent the possibility of drug recall, manufacturers with products at risk of contamination need to find a mitigating strategy that is safe and effective.

Nitrosamine contamination: the latest findings

- Estimations predict the risk of nitrosamine contamination in regularly prescribed drug products is more common than previously thought, with 40.4% of API and 29.6% of API impurities being classified as potential nitrosamine precursors[1]
- Certain types of foil packaging can act as a source of nitrosamine contamination[2]
- A new nitrosamine contaminant – Nitroso-STG-19 (also known as NTTP) – has been detected in sitagliptin medicines, which is typically used to treat type 2 diabetes[3]

Which mitigation strategy is best for you?

Finding a suitable approach to mitigate nitrosamine risk depends on your individual drug product. dsm-firmenich can help you find the best strategy, regardless of whether your pharmaceutical is already on the market or in development. For drug manufacturers looking to assess their formulations without impeding the performance of their API, dsm-firmenich can support with viable nitrosamine risk mitigation strategies.

Discover the power of **antioxidants**

Antioxidants are naturally occurring compounds that possess the power to effectively block the formation of nitrosamines.[4] Important studies have screened many known nitrite scavengers and investigated their effectiveness in drug products, with results demonstrating that ascorbic acid (vitamin C) and alpha-tocopherol (vitamin E) can be leveraged to successfully mitigate nitrosamine formation.[5,6] Not only is this an effective approach for reformulation, but the FDA suggests to consider this strategy as one viable option.

dsm-firmenich can help you mitigate nitrosamine risk with high-quality antioxidant excipients, to deliver safer drug products, with confidence. We understand the time-critical context when it comes to nitrosamine mitigation. Our GMP-certified antioxidants are of the highest pharma grade quality and have a well-characterized profile that includes long-term safety and pharmacokinetic absorption, distribution, metabolism, and excretion (ADME) data. In addition, they are supported by the necessary regulatory documentations, saving you from time-consuming obstacles.

Beyond nitrosamine mitigation

Ascorbic acid and alpha-tocopherol can elevate your finished drug product by helping to stabilize and protect the API from degradation. Both ascorbic acid and alpha-tocopherol are suitable for various delivery systems, including oral liquids (solutions and suspensions), solids (tablets and capsules), powders and premixes and semi-solids (creams, gels).

Benefits of using antioxidants in your mitigation strategy

- ✓ Effectively inhibit nitrosamine formation
- ✓ Synergistic benefits
- ✓ API stabilization
- ✓ Suitable for various delivery systems

Discover dsm-firmenich's reliable mitigation strategy

In addition to putting your drug product at risk of recall, nitrosamine impurities could cause harmful carcinogen exposure to patients. To protect your drug – and the patients who need it – manufacturers need more than ingredients, they need a reliable partner that is committed to global patient health and solving the most complex pharmaceutical challenges.

dsm-firmenich is fully equipped to help you navigate nitrosamine risk mitigation with customized solutions and expert services. We can help you find the right mitigation strategy for new and existing products, from risk assessment to reformulation and market access, and beyond. **How?**

1

Nitrosamine risk assessment

We can help you with initial assessments to determine whether your drug product is susceptive to nitrosamine contamination.

2

Superior formulation and application expertise

We can support you with our analytical services including chemistry expertise – tailored to each customer, alongside our cutting-edge technologies. Our expert team of scientists conduct 'proof of concept' lab scale trials to identify the most suitable grade and level of antioxidant needed for specific drug formulations, as well as advising the best possible processing and handling routes.

What drug dosage forms can we assist you with?

Powders and premixes
Dry blending, wet blending and spray drying, granulation and agglomeration

Finished oral dosage forms
Tablets, effervescent tablets, chewable tablets, hard shell capsules

Semisolids
Gels and creams

Liquid formulations
Suspensions and solutions

3

Science-backed ingredients

Our high-quality antioxidant excipients can be part of a safe nitrosamine risk mitigation strategy. We have investigated the properties of ascorbic acid and alpha-tocopherol at certain concentrations in an experimental model system, defining their efficiency in preventing nitrosamine formation. Our proprietary research can support you in finding the right solution for your individual portfolio.

All our ingredients are GMP-certified and compliant with the United States Pharmacopeia (USP), European Pharmacopoeia (EP) and Japanese Pharmacopoeia (JP). With over 70 years of experience in manufacturing and securing the supply of vitamin APIs and excipients, we bring the passion, expertise, innovative mindset and support you need to meet new regulatory criteria related to nitrosamines.

4

Regulatory know-how

Thanks to our unmatched regulatory expertise we have the ability to manage market entry registration processes worldwide. This means we can assist you through the necessary legislations, including a documentation package to compile CTD part 3.2.P to support our excipients during the marketing authorization approval procedures.

5

Commitment to innovation

We're dedicated to developing robust science in the pharmaceutical industry to power the market forward. That is why we are interested in connecting with you.

Partner with dsm-firmenich

Our team of experts is ready to help you develop safe formulations.

The dsm-firmenich difference

- ✓ Unrivalled portfolio of high-quality active pharmaceutical ingredients, excipients and intermediates
- ✓ A deep understanding of the regulatory and quality requirements in local markets
- ✓ Leading technical services, including formulation and application expertise
- ✓ Scientific services
- ✓ Innovation and R&D capabilities

Get in touch to start the process or scan here.

References

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