# Food Science Fusion Ltd

**The Home of New Product Development & Knowledge Transfer**

Report on nitrite levels in supermarkets in England
for the Coalition Against Nitrites

# Background

Food Science Fusion Limited is an independent company based in the East Midlands of England. Established in 2015 to offer services from thought to fork, to the Food and Beverage Industry across the UK and Ireland.

For this study commissioned by CAN, **C**OALITION **A**GAINST **N**ITRITES LIMITED, we have coordinated the testing of products in England. We commissioned a company Rejuvetec Ltd as the laboratory experts. Food Science Fusion have assessed both sets of raw data results and the following report.

# Introduction

- FSF commissioned 21 meat products in England to be tested in accredited test facilities for nitrite analysis. The products were bought from English supermarkets.
- 7 cooked ham, 6 Wiltshire ham and 8 unsmoked bacon were bought and tested for nitrite levels. Each product was also tested twice at a different point in the same pack.
- This report ranks the products from highest to lowest nitrite content and includes the raw data. Results will help us understand how these nitrite levels across the products tested.
- Samples from England was also purchased from ALDI, ASDA, TESCO, M&S, SAINSBURYS, MORRISSONS, and LIDL.

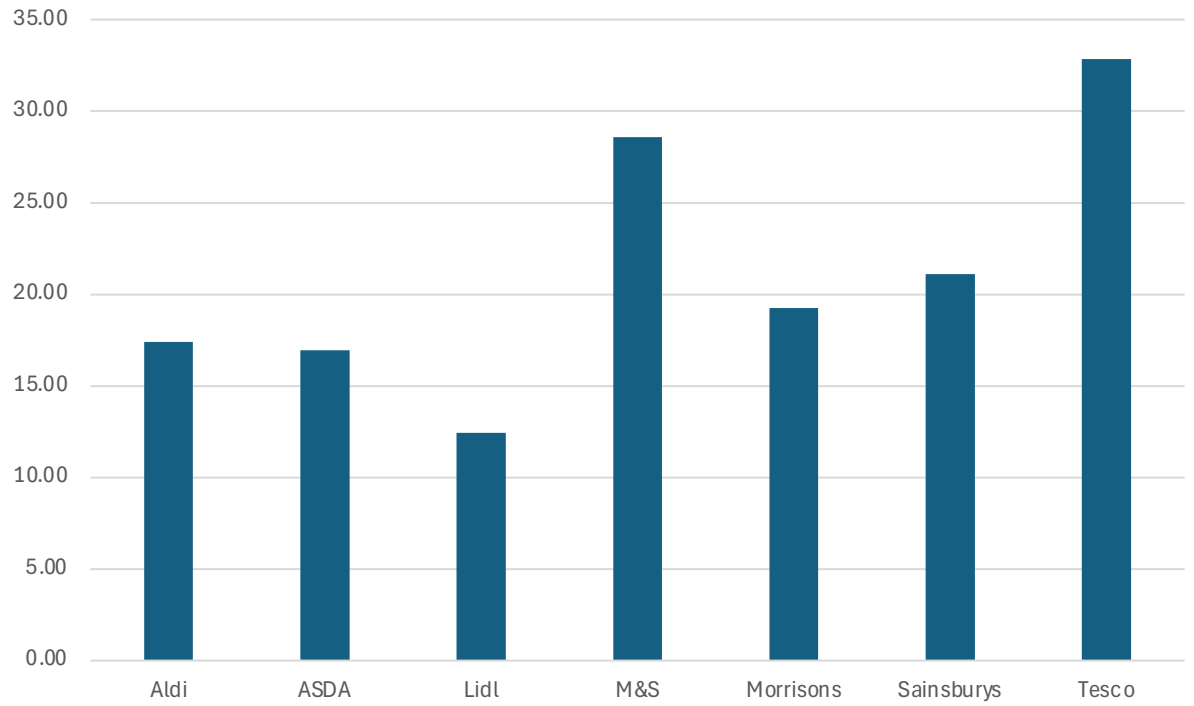
# Testing Method

- The determination of nitrite levels present in the meat samples from England were carried out using UV-VIS Spectroscopy.
- To ensure reliability of results, each product was tested twice, with both samples taken from different portions of the same pack.
- This duplicate testing helps confirm the consistency of the method and ensures that any variation is minimal and not due to sampling error.
- As various heat sources and intensities can be applied to cook the raw product all samples were tested as presented in the pack

## Nitrite Content in Meat Products Samples from English Supermarkets

- All supermarkets' products fall below regulatory limits for nitrites.
- The highest nitrite content amongst the samples was observed in  Wiltshire ham ranging from Tesco (32.84mg/kg), M&S (28.58mg/kg), Sainsbury (21.09mg/kg).
- Unsmoked bacon from Morrissons was found to have the lowest concentration of nitrites (1.84mg/kg).
- Wiltshire ham from all the supermarkets had high nitrites content compared to the other meat products except from Asda’s with nitrite content of 8.07mg/kg.

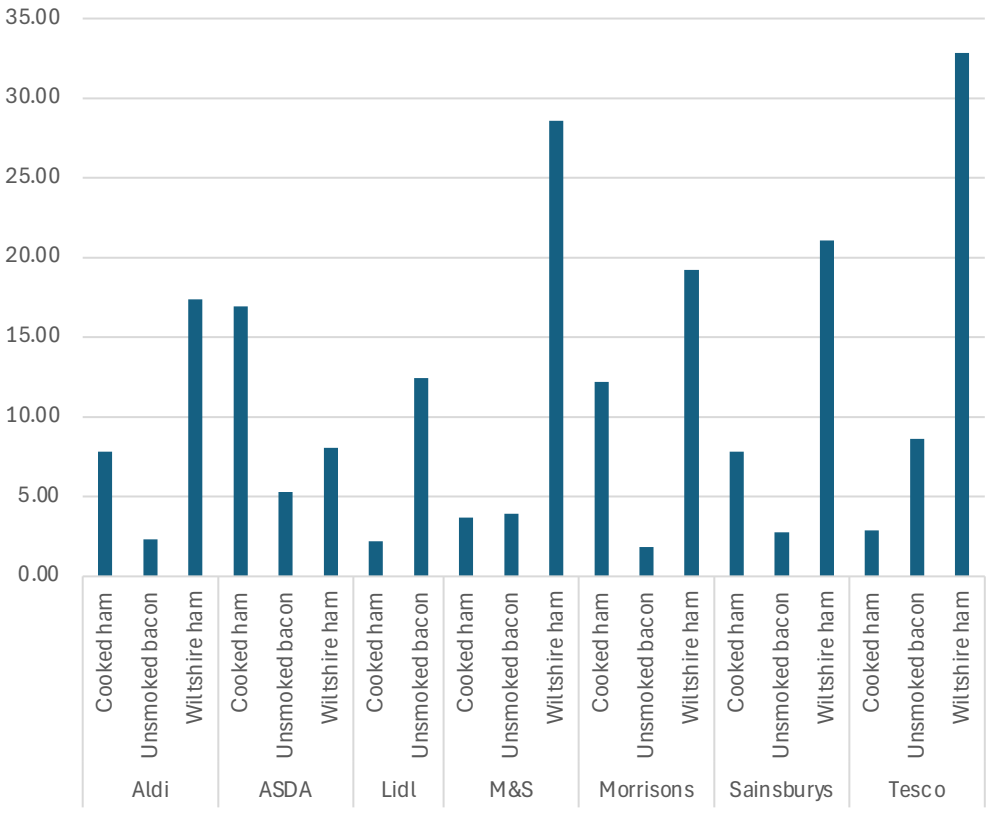
# Average Nitrite Levels in Meat Products by Supermarket in England




Nitrite Content in Meat Products Samples from England Supermarket

Maximum legal limit – 150mg/kg

# Comparison of Nitrite Levels in Various Processed Meat Products from English Supermarkets




Nitrite Content in Meat Products Samples from English Supermarkets

| Supermarket | Type of sample | Calculated nitrite concentration (mg/kg) |
|---|---|---|
| Tesco | Wiltshire ham | 32.84 |
| M&S | Wiltshire ham | 28.58 |
| Sainsburys | Wiltshire ham | 21.09 |
| Morrisons | Wiltshire ham | 19.24 |
| Aldi | Wiltshire ham | 17.4 |
| ASDA | Cooked ham | 16.94 |
| Lidl Sample 1 | Unsmoked bacon | 12.44 |
| Morrisons | Cooked ham | 12.21 |
| Tesco | Unsmoked bacon | 8.64 |
| ASDA | Wiltshire ham | 8.07 |
| Aldi | Cooked ham | 7.84 |
| Sainsburys | Cooked ham | 7.84 |
| Lidl Sample 2 | Unsmoked bacon | 6.8 |
| ASDA | Unsmoked bacon | 5.3 |
| M&S | Unsmoked bacon | 3.92 |
| M&S | Cooked ham | 3.69 |
| Tesco | Cooked ham | 2.88 |
| Sainsburys | Unsmoked bacon | 2.77 |
| Aldi | Unsmoked bacon | 2.3 |
| Lidl | Cooked ham | 2.19 |
| Morrisons | Unsmoked bacon | 1.84 |

Maximum legal limit – 150mg/kg

# Conclusion

- All processed meat samples tested from English supermarkets were found to be compliant with EU and UK safety regulations, staying well below the legal maximum of 150 mg/kg for nitrite content. However, significant variation was observed between different product types and retailers.
- Wiltshire ham generally showed the highest nitrite concentrations, particularly from Aldi (543.19 mg/kg nitrate) and Tesco (32.84 mg/kg nitrite), whereas unsmoked bacon, especially from Morrissons, had the lowest values.
- Overall, the data indicates that while all products meet safety standards, the preservative levels vary significantly by product type and retailer. These findings can inform consumers who wish to minimize their intake of nitrites and provide valuable insights for regulatory oversight and future product formulation.