

Factsheet - New chlorate residue limit introduced in UK milk

This factsheet is a part of a series that examines factors influencing the sustainability of the dairy industry. Here we explore the new chlorate residue limit, why it needs to be reduced and the practical steps you can take on farm.

How does this affect farmers?

Effective cleaning and disinfection of milk processing equipment is vital to prevent foodborne illness and to safeguard the integrity of our dairy industry. However, the presence of chlorate residues in dairy products has become a concern in recent years. Following updates to key legislation and industry guidelines, UK farmers must now be able to show that they are proactively avoiding the risk of milk contamination with chlorate residues.

New legislation

A new chlorate maximum residue limit (MRL) for liquid milk was set under EU legislation and applies to the UK post-Brexit (Commission Regulation 2020/749). The MRL for liquid milk (raw or pasteurised) is 0.1mg/kg. The MRL for foods intended for infants and young children is still set at 0.01mg/kg.

Compliance with MRLs will be checked by the Health and Safety Executive and some milk processors have already added questions about best practices to reduce residues into their Red Tractor Assurance audits. Historical advice to disinfect parlour systems and bulk milk tanks with hypochlorite as a final rinse is no longer in line with Red Tractor Assurance standards and industry recommendations.

Why must we reduce residues?

Chlorate is a by-product of chlorine and may be found in liquid and dried milk after using chlorine-based disinfectants for cleaning parlour and processing systems. Like many products and chemicals, residues need to be minimised to prevent any human health risk. This is true for chlorates too.

Following the drying process chlorate residues may concentrate in powdered milk products, making infants a key risk group for residue exposure. We are likely to see increased scrutiny of chlorine-based disinfectants and ensuring that residues are minimised is important.

What can you do on farm?

Avoiding exceeding chlorate MRLs is easy to achieve and can be done at minimal cost. Since November 2021, Red Tractor Assurance standards have stated that both the parlour system and bulk milk tank must be rinsed with clean, potable (drinking quality) water to leave them free of chemical residues. The standards also require you to have detailed plant cleaning protocols available for compliance assessors.

Practical advice:

- Do not use hypochlorite-based disinfectants in the final rinse of parlours and bulk milk tanks
- Following disinfection, make sure all milk-contact surfaces are rinsed with clean potable water, e.g., direct from mains supply
- Where private water supplies are used, or there are doubts about water quality, use alternatives to hypochlorite such as peracetic acid, which degrades over time and does not leave residues

For some dried milk products, where the removal of water and concentration of residues may mean the MRL of 0.01mg/kg is exceeded, it is useful to know the concentration factor of the drying process e.g., 10 times concentrated. This would help you to back calculate the chlorate concentration in the original liquid milk and display compliance at a farm level. Foods destined for infants and young children is still subject to the 0.01mg/kg MRL.

Useful resources

The Milking Equipment Association (MEA) supports dairy farmers by promoting high quality milk production, training technicians to follow a set cleaning regime and encouraging wider communication of best-practices. MEA Chair John Baines says "The Milking Systems Technician Accreditation (MSTA) Scheme ensures that those supplying, installing and servicing milking equipment are aware of the requirements of this new legislation. In addition to using non-chlorine based final rinse disinfection, dairy farmers are recommended to employ MSTA-accredited technicians.

"MSTA technicians will help to ensure that cleaning systems are calibrated at the correct chemical dosing rates. It is worth noting that different cleaning/disinfection products can have different dosing rates. System settings and cleaning protocols must be reviewed and adjusted if changes are made to the products used when the system was setup."

If processed dairy products exceed the new chlorate MRL, Dairy UK has produced a guidance document for its members detailing which information should be supplied to prove compliance.

Highlighting the new chlorate MRL and how farmers can demonstrate compliance, will ensure supply of safe dairy products and help to protect our industry reputation.

The Dairy Roadmap

The Dairy Roadmap aims to improve the environmental sustainability of the UK dairy sector whilst ensuring the continued prosperity of the industry, and the provision of safe, affordable, nutritious and sustainable produce for years to come.

The UK Dairy Roadmap is brought to you by:

