



Guidance to Chlorate MRLs Compliance Best Practice

Soft Drinks including Fruit Juices



Background & Introduction

Commission Regulation 2020/749 amending Annex III to Regulation (EC) No 396/2005 of the European Parliament and of the Council as regards maximum residue levels for chlorate in or on certain products was published on 8.6.20.

The regulation confirms levels of chlorate for various fruits & vegetables along with 'Footnote A' that covers processed products:

Chlorate (A)

To take into account the specific situation of chlorate residues, in processed food (including for the purpose of this Regulation foodstuffs that have been derived using processes listed in Article 2(1)(n) of Regulation (EC) No 852/2004), that has come in contact with products containing chlorate residues, or that contains ingredients with such residues, such as processing aids or drinking water, used in compliance with the respective legal requirements, these additional contributions of chlorate residues should be taken into account when determining the permitted content of chlorate residues in or on the processed food products in accordance with Article 20 (1) of this Regulation. The burden of proof regarding the level of those additional contributions lies with the food and feed business operator.

The Health & Safety Executive (HSE) has advised that companies affected by this Regulation should issue a statement confirming that, with respect to the practical interpretation of the Regulation in the UK, goods identified as processed foods may legitimately exceed statutory MRLs set for unprocessed foods (with no enforcement or restriction on sale/supply arising), with the following provisos:

- That the derogation from the MRL set will only apply where businesses provide proof that there have been legitimate additional chlorate trace inputs at the processing stage; such as through the use of potable water or other sources in processed food production, or through legitimate disinfection practices to maintain hygiene.
- That each food business generates a full description of its production practices to serve as proof that these are legitimate additional inputs leading to the MRL being exceeded.
- It is also expected that the above arrangements will run alongside continuing industry efforts to minimise uses and traces arising from those uses, provided standards of food hygiene remain high.
- Any steps taken to comply with the MRLs Regulation should not undermine appropriate food hygiene controls.
- Chlorate will continue to be included in a proportion of the Government's national testing programme monitoring surveys. Where, in the course of the analyses carried out for the programme, residues are found in processed foods that exceed the MRLs now set for unprocessed foods, HSE will write to the companies and consider responses as appropriate, calling upon the advice of the Expert Committee on Pesticide Residues in Food (PRiF) as necessary.

Actions

BSDA members are advised that such a statement should be prepared where there is any likelihood of an MRL exceedance.

Chlorate is not used as a Plant Protection Product (PPP) and Good Agricultural Practice (GAP) compliance is part of FBOs' Food Safety Management Systems to assure chlorate is not used as a PPP.

The potential inputs for chlorate are shown in the flow diagrams in Annex A.

For soft drinks and reconstituted fruit juice the major potential contributor to chlorate is potable water. Most manufacturers are reliant on the municipal water supply. It is the responsibility of water companies to supply potable water to their customers from all their water treatment works.

Within the EU a limit for chlorate in potable water has been agreed under the new Drinking Water Directive of 0.25mg/l, with an exception of 0.7mg/l (the WHO guideline level) where a disinfection method that generates chlorate, in particular chlorine dioxide, is used.

As the UK has left the EU this directive does not have to be implemented in GB, water companies are therefore not obliged to make available data on chlorate to customers.

An October 2019 report¹ from Cranfield Institute for DWI, looking at water treatment companies in England & Wales, found no exceedance of the WHO guideline level for chlorate in drinking water of 0.7mg/l, but 23.5% of the samples tested exceeded the 0.25mg/l level in the new EU Drinking Water Directive. The report showed that the method of water disinfection has an impact on the level of chlorate present, with on-site electrolytic chlorination and sodium hypochlorite giving the greatest risk of elevated chlorate levels.

Water companies using disinfection regimes that contribute to elevated chlorate levels should adhere to the existing good practice guidelines. Routine sampling and analysis should be undertaken with the results being readily available to Food Business Operators, however this is not currently the case.

Chlorate concentrations in mains water were shown to be seasonal with the highest levels occurring between June to September.

For UK soft drinks and reconstituted fruit juice production the potential for chlorate coming from the potable water supply is therefore high.

EU guidance on addressing microbiological risk in fresh fruits and vegetables at primary production recommends the use of potable water and/or biocides at different stages of production as part of a good hygiene regime.

Cleaning agents are used throughout the food supply chain, from hand washes in the field, wash water for fruits and vegetables prior to juice extraction and at all stages of food production operations, to prevent microbiological contamination.

FBOs refer to industry best practice guidelines to mitigate chlorate.

Guidance at UK (FBIG) and global (GFSI) level is available on minimisation of traces of hygiene biocides and their derivatives in foods from farm to final product.

Pointers for FBO statement on production practices

- 1. Identify where chlorate may have been introduced from potable water
see flow diagrams in Annex A**

- 2. Identify stage(s) where chlorate traces may arise from the use of hygiene biocides to assure produce safety and hygiene**
see flow diagrams in Annex A

- 3. Monitoring**

If you do carry out monitoring of residues levels at any stage of production you may wish to refer to this in your statement.

Additional sector data may be available that could be referenced.

Dependent on the issue it may be relevant to refer to [earlier PRiF quarterly data](#):

Refer to any industry guidance followed

Examples:

FBIG (2016), [Biocides in Cleaning & Disinfection](#)

GFSI (2019). [Chemicals in Food Hygiene. Volume 1: The optimal usage of cleaning agents, sanitisers and disinfectants to minimise the risk of traces in foods](#)

Food and Drink - Good Manufacturing Practice: A Guide to its Responsible Management (7th edition) 2018, Institute of Food Science & Technology (IFST)
[Chapter 21 Cleaning and Sanitation](#)

IFU Best Practice Guidance #1 - Fruit Washing and Sanitation 2020 revision

Additional guidance is available at www.chilledfood.org/FBIG/

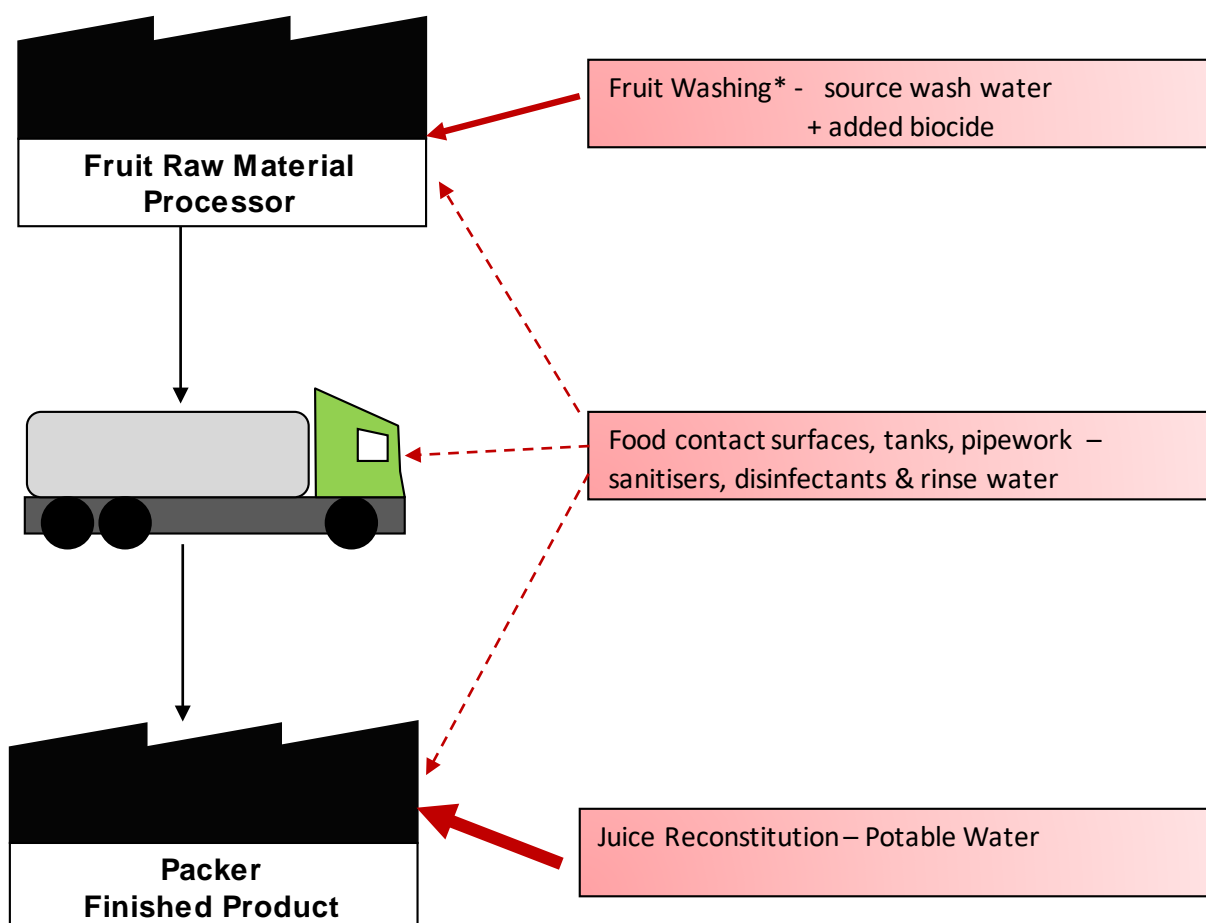
- 4. Refer to any appropriate food safety accreditations which you currently hold in relation to production, demonstrating that PPP usage is subject to external scrutiny** (e.g. Global GAP, BRCGS v8, retailers' specific commercial requirements/ protocols)

¹Cranfield Water Science Institute (2019). **Chlorate in Drinking Water**, Defra WT2209 (DWI70/2/316). <http://www.dwi.gov.uk/research/completed-research/reports/DWI70-2-316.pdf>

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ANNEX A

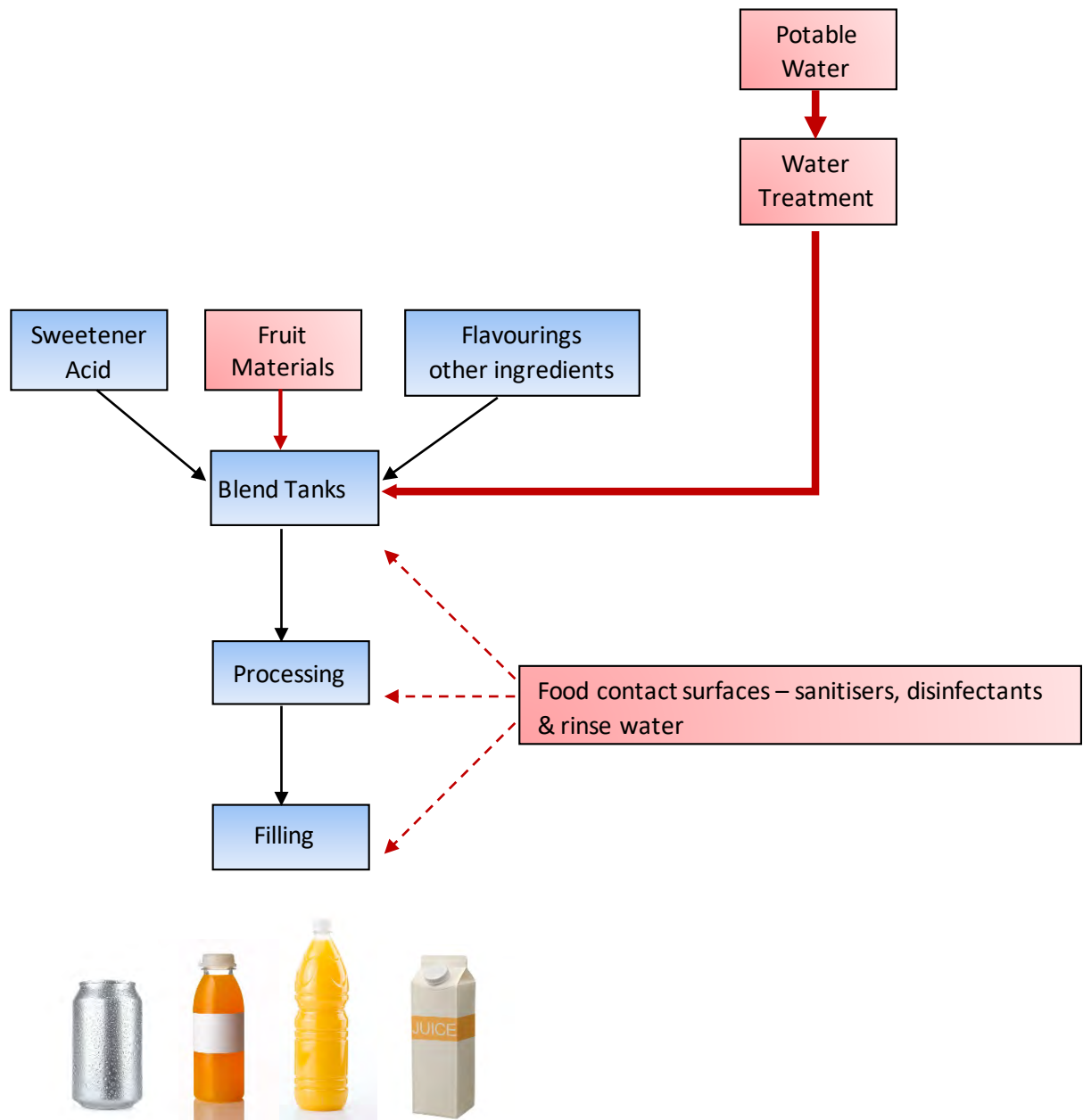
Key sources leading to elevated chlorate levels in fruit juices from concentrate



Potential inputs of chlorate shown in red

*The fruit washing stage becomes more significant depending on the type of fruit. Where the whole fruit is used for juice extraction, e.g. apple & soft fruits, the potential for chlorate increases.

Key sources leading to elevated chlorate levels in Soft Drinks



Potential inputs of chlorate shown in red