



Cleaning 2.0 – we need a revolution

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We need to rethink cleaning as food production is changing, therefore, the cleaning paradigm must comply with these changes! At the same time, it is of the utmost importance that food safety is not jeopardised! We are facing the following facts:

- The production hours increase
- The environmental footprint must decrease

Indeed, it is a difficult task that requires participation from the entire value chain!

WATER REUSE – HUGE POTENTIAL

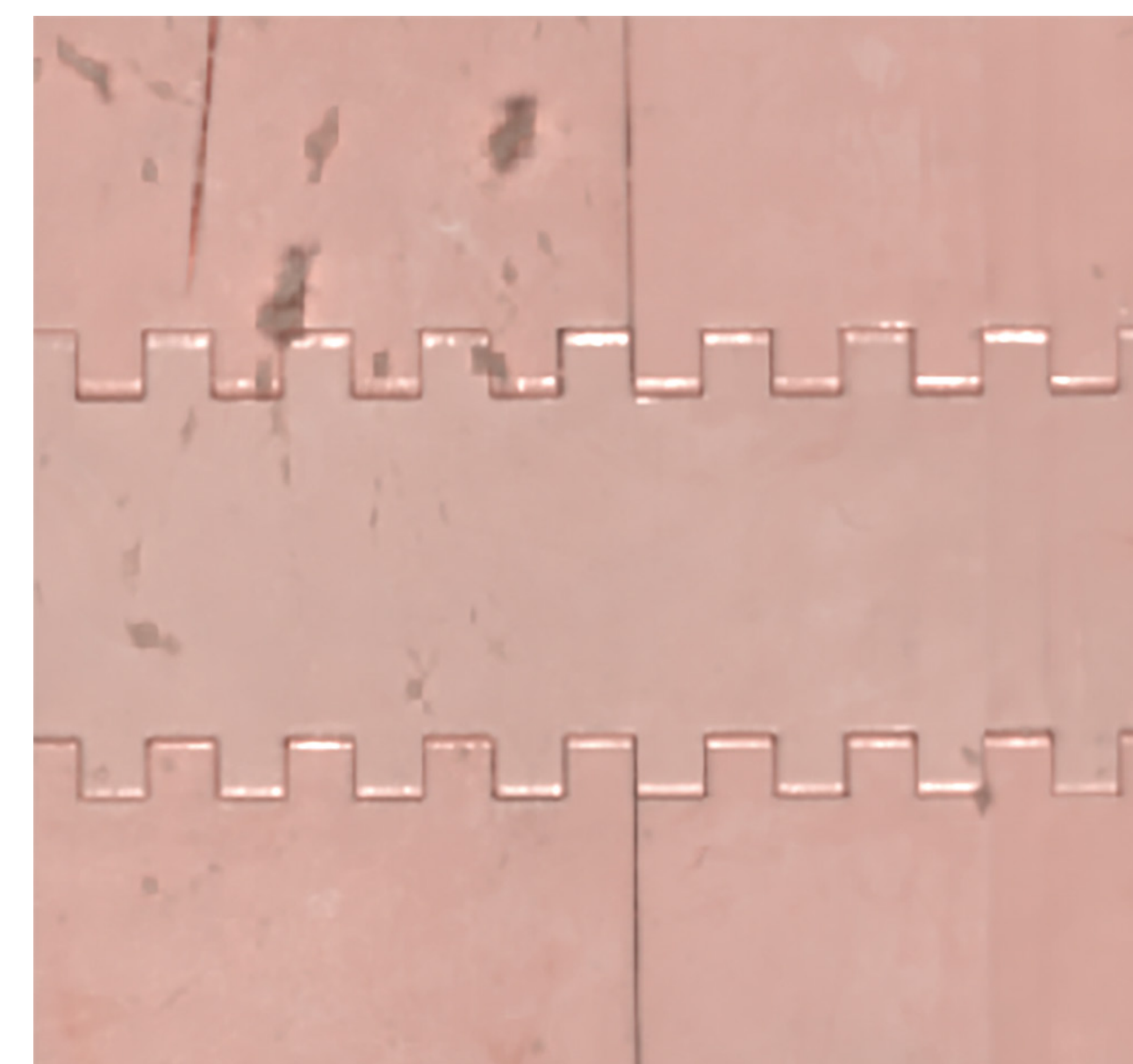
The average amount of water used per slaughtered pig at the Danish slaughterhouses is approx. 210 L, of which cleaning amounts to 25%. Of the amount of water used for cleaning, 80% is used for initial rinsing. DMRI is looking into the reuse of water as a way to push the limit even further for water used per slaughtered animal.

Rinsing water from one area is analysed for the level of microorganisms, various water cleaning technologies are applied, the effect is documented, and finally a risk assessment is performed to evaluate whether the produced water quality matches the requirements of e.g. rinsing water for use in another area. In this way, the total water consumption of a slaughterhouse can be reduced.



OBJECTIVE INSPECTION OF CLEANING

A visual inspection is performed after 'the cleaning has been completed' and before 'the start-up of production'. It is mandatory and typically performed by the quality department. Even though the inspection is thorough and as objective as can be, it is still "people-reliant". Adding a "system-reliant" objective measure will not only increase the documentation of the performed cleaning inspection, but it will also add valuable data for proactive improvement of the cleaning performed. DMRI are now looking into the use of hyper spectral vision for cleaning inspection focussing on the measurement of fat residues on equipment. With hyper spectral vision it was possible to detect 46 mg of fat on 100 cm².



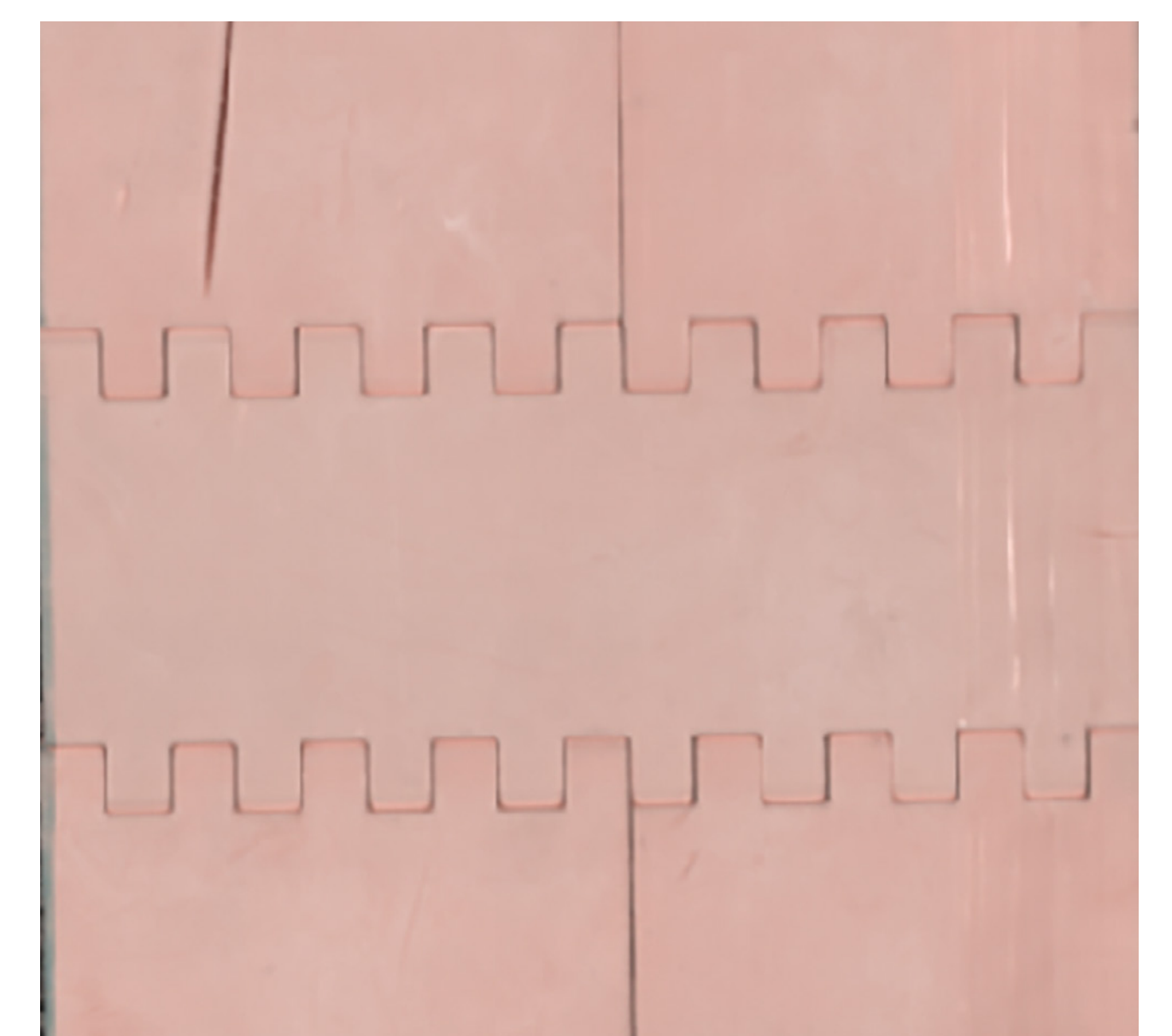
Conveyer belt with fat



Vision detection of fat



Clean conveyer belt



Vision of clean conveyer belt

WHEN IS CLEAN – CLEAN ENOUGH?

This is the fundamental question and the basis of all alterations to be developed related to what we know as traditional cleaning today. But we do not have the answer, yet. Changes are inevitable and must be well tested to obtain a high level of food safety. The food producers also need to ensure that the cleanliness comply with customer demands and guidelines given by authorities.

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