5 - Best Practise Guidelines

5.9 Pasteurisation

5.9.1 Pasteurisation/Can warming

Continuous plastic mats have proven themselves as an efficient means of transport. Together with the matching comb deadplates, these ensure a gentle push-in and push-out of the cans in the pasteuriser. The step-back drive of the traditional bottle pasteuriser results in a large number of tipped-over cans when the packing pattern in not complete, especially with 500 ml cans with the new (down gauged) end of 52 mm diameter. Side guides must be manufactured from plastic or designed with a plastic coating to protect the decoration.

5.9.2 Pasteurisation water quality recommendations

Particular attention must be paid to the water quality. Additives for preventing the formation of slime and algae, as well as for adjusting the pH, may not contain any corrosive components for both metals - steel and aluminium. In the heating zones the pH must be adjusted to between 6.5 and 7.5.

A setting which is too acidic leads to corrosion on the exposed metal surfaces and the decoration; in the alkaline range >7.5 there is a danger in conjunction with a high water hardness of pasteurisation water blackening

- on the can dome with aluminium cans,
- on the uncoated ring pull on the ends.

It is recommended that corrosion inhibitors, pH and water-hardness stabilisers be added to the water of the heat-up and heat maintenance zones.

- Alkalinity: as low as possible,
- Chloride: (sum of chloride and bromide if present), sulphate and nitrate each less than 50 ppm.
  Since the values do not meet the MPE specifications regarding stress corrosion, the ends need to be rinsed with water meeting MPE specifications (chloride levels should be <10 ppm and sulphates and nitrates <15 ppm), after leaving the pasteuriser.

Ensure salt free rinsing after pasteurisation once pasteuriser water is not according to MPE recommendations and drying of filled cans.

For more detailed information please have a look to the “Filling Line Can Handling Best Practices” at “Related documents”.

5.9.3 Internal can pressure versus pasteurisation temperatures

The carbon dioxide content, temperature, filling and heat dwell time are decisive for the pressure development during pasteurisation or warming. The resulting balance pressure can be determined from tables in the technical literature or with corresponding slide rules. It may not exceed the guaranteed 620 kPa pressure stability of the cans and ends. With carbonised refreshing beverages, the balance pressure is achieved after the selected temperature is reached, however for beer not until after approx. 30 - 45 minutes. As the dwell time in the heating zone is usually only approximately 10 - 15 minutes, and the balance state has therefore not yet been reached, only a pressure of approx. 50 kPa lower is achieved. If this “bonus” is utilised for higher carbonisation, it must be ensured that during a longer standstill the system is automatically switched over to a temperature reduction. Modern pasteurisers are equipped with a PU controller with automatic temperature reduction. **It is not sufficient to just switch off the pumps**. Exceeding the pressure presents a danger of bulging of can bottoms and/or ends. To determine and monitor the actual pressure development, it is advisable to use a combined temperature and internal pressure measuring device.

5.9.4 Pasteuriser temperature

If higher temperatures than 75°C are required then please contact your local CTS department.

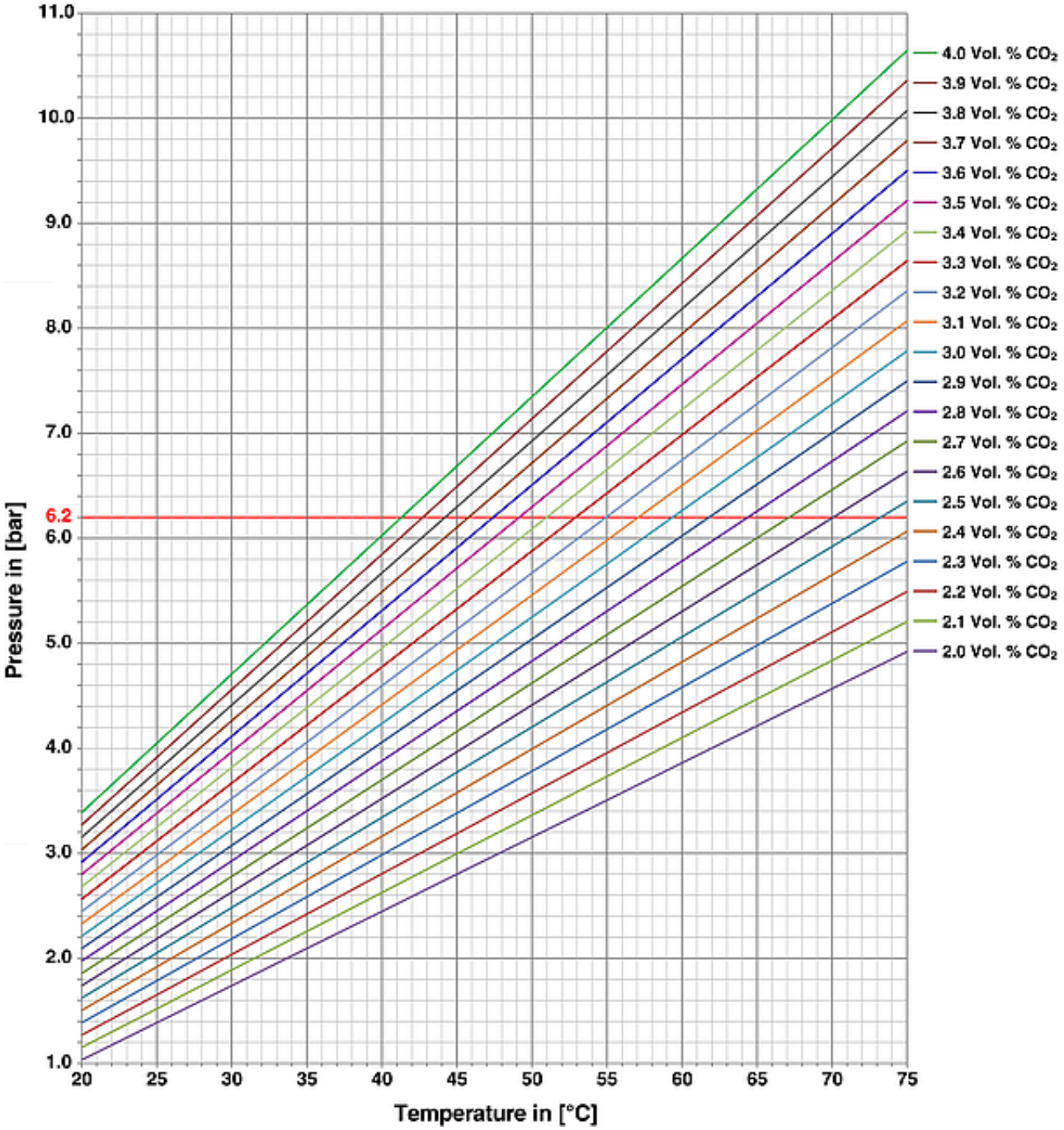

Fig. 4: Relationship of internal pressure between CO_2 content and temperature
(based on H&K pressure measurement under real pasteurisation conditions in glass bottles filled with carbonated water)

During usual pasteurisation the pressure balance will not be reached. Depending on the circumstances the pressure will be 0.2 to 0.6 bar lower. An overfill of 5 ml gives about 0.15 bar increase of pressure.

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