Process & Packaging, Inc.

"Where IDDEAS Become Reality"

Design - Manufacture - Installation of Process & Packaging Systems

Seven Steps to Aseptic Filling

The cleaning & sanitizing standards required for the process and packaging of juice and juice based products into pouches, PET and glass bottles under 'cold fill' conditions.

The increasing demand for aseptic filled juice products (i.e. product that is filled at ambient temperature and is microbially free and shelf stable in package), is gaining wide acceptance in the North American markets. IDD has developed a series of 'PurePass' systems that achieve this end at an affordable price.

The recommended minimal standards when operating an IDD 'PurePass' system are outlined below. They are intended as a guide and in no way over-ride or supplant EPA, FDA and HACCP standards required by law.

In order to achieve a consistent, microbially free and shelf stable product in package, it is necessary to ensure that all equipment is installed, maintained and operated to the following guidelines and that staff are educated and trained in the following areas relating to equipment maintenance, operation, protective clothing and personal hygiene when operating and maintaining 'PurePass' systems and related equipment.

The process and packaging of product can be broken down into the following areas:

1. Raw product - single juice, concentrates and additives (i.e. sugar, herbs, acids etc.)
2. Raw product preparation - batching and blending equipment
3. Package materials in contact with the product (i.e. bottles and caps)
4. Product 'Ultra Pasteurization'
5. Package handling and filling equipment
6. Product preparation and packaging areas
7. Personnel and personal hygiene

1. RAW PRODUCT used in the final product must be maintained in a clean and sanitary environment to prevent microbial growth in raw products. Powders and granules etc. should be in a dry, cool area and liquids in a cold room at <38°F/3.5°C to prevent mold, fungal and bacterial growth. Frozen concentrates should be thawed at low temperature in the cold room to prevent further microbial growth during the thawing process.

2. RAW PRODUCT PREPARATION in the form of batching, blending and short term storage is carried out in purpose built closed, stainless steel vessels, pipework and blending systems that have a dedicated Cleaning-in-Place (CIP) and Sanitizing-in-Place (SIP) system for cleaning and sanitizing of all raw product contact parts.

3. PACKAGE MATERIALS such as the PET or glass bottles, screw caps or crowns must be suitable for the product being packaged. PET bottles should be of sufficient preform weight for the bottle volume so as to minimize O2 ingress into the product. The cap or crown should be as small as marketing will allow, have a suitable O2 barrier seal and scavenger.

4. PRODUCT 'ULTRA PASTEURIZATION' in the 185 to 195°F (85 to 90°C) range is necessary to eliminate hard mold spores and potentially high counts of yeast and bacteria. The IDD 'PurePass' system minimizes heat exposure and will recover up to 95% of the heat to minimize heat degradation of the product, improve the systems energy efficiency and enable an ambient temperature fill into a suitable but standard PET or glass bottle. An integral part of the pasteurization system must include a CIP/SIP system to ensure that all product contact parts of the pasteurizer and filler are cleaned and sanitized prior to production.

5. PACKAGE HANDLING & FILLING EQUIPMENT is specifically designed and engineered to achieve a microbially free fill in a controlled environment. From the time the bottles and caps/crowns are fed into the packaging line they must be thoroughly sanitized and maintained as such until filled and capped/crowned. This requires a special sanitizer such as Oxine and Oxine activation and distribution systems to sanitize the bottles in a converted rinser and wash caps or crowns in a washer and the feed system. Additionally, spray, misting and fogging systems are set up to continually sanitize all product contact parts during the filling and capping or crowning process within a confined area that has a positive sterile filtered air environment local to the filler.

6. PRODUCT PREPARATION & PACKAGING AREAS must comply with the latest HACCP regulations and include (but not be limited to) good floor drainage, sealed floor and wall finishes, positive clean filtered air supply into the area, limited screened access doors. The area must have limited employee access and be kept dust free. Wash down and sanitizing facilities must be available for the washing and sanitizing of walls, floor and machinery within the area on a daily basis. Only essential materials and suitable handling equipment should be allowed in the production area.

7. PERSONNEL & PERSONAL HYGIENE is of paramount importance to a successful operation. Training of maintenance and operations personnel must include (but not be limited to):

- Recommended supplier maintenance and operating procedures are practiced.
- Maintenance and operating practices that ensure maintained equipment is cleaned and sanitized prior to production.
- Appropriate clothing and head covering to prevent foreign objects from entering the product. Loose items such as jewelry etc. should be removed.
- Appropriate bathroom cleanliness and practices.
- Use of latex gloves and hand sanitizing solutions when entering the production area.
- Use of footbaths when entering the production area.