

4-21 Environmental Sampling for Detection of Salmonellae, CFSAN Guidance

BACKGROUND

Salmonellosis has been known to be a food-borne disease since the late 1800s. It still remains a major food safety concern throughout the world, is the major cause of bacterial foodborne illness in the U.S and is a pathogen of significant interest to FDA. The major reservoirs for Salmonellae are raw meats, poultry and eggs; the organism is also isolated from aquaculture products and fruits, vegetable and nut meats. Salmonellosis outbreaks have been associated with a variety of foods, including raw seafood, fresh produce, egg products, cake mixes, unpasteurized milk, peanut butter, chocolate and salad dressings. Salmonellae are known to survive and grow in the natural environment, including water sources. It is ubiquitous and has been recovered from some insects and nearly all vertebrates and invertebrates. This makes the recovery and identification of Salmonellae critical as an environmental contaminant.

SAMPLE COLLECTION

DO Collect Samples From:	DON'T Collect Samples From:
Floors and related areas – Under floor mounted equipment, scales (floor and table mounted)	Employees – work shoes, hands etc.
Sanitizing foot mats – if dry	Hand wash or eyewash stations
Cleaning Equipment – central vacuum systems, automated floor cleaning equipment (e.g., Tenent type walk-behind or riding sweepers, brooms, mops, etc.) Pay particular attention to the collection of floor sweepings or the dry contents of vacuum cleaner bags or tanks.	Packaging materials – jars, lids, etc.
Air conveying equipment – air filters; air ducts and intake and exhaust vents; food residue on equipment and floors if old and dry	Direct food contact surfaces –cleaned often, would be unlikely to have residual organism growth.
Product conveyors – cables, belts, joints, where product residue accumulates, if the residue is old and dry	Raw ingredients– raw peanuts refined sugar, etc.
Unsealed control and drive chambers; electrical/mechanical service boxes that are not cleaned and/ or sanitized. Look for dry dust and residue in these boxes.	Outside the plant – roof, parking lot, etc
Cracked equipment – boots (shock absorbing equipment), metal joints, etc.	Areas with running water and very wet areas
Under sinks / safety stations – Under hand wash or eyewash stations if appearance of leaks, cracks etc.	Zone 4
Equipment – areas that are difficult to reach and clean, non-food contact surfaces, nooks and crannies if dry.	
Doorways - floor area in doorways leading into or out of the production facility or onto the roof	
Pallets – Floor under wooden or plastic pallets and pallets themselves	
Floor drains - use a sponge to scrub dry residue from floor drain grids and walls	

References:

- 1.FDA. Investigations Operations Manual 2008. 4.3.7.7 – Environmental Sampling
2. Doyle, Michael et al. Food Microbiology Fundamentals and Frontiers 2nd Ed. Pgs 141-178.
- Cliver, Dean and Riemann, Hanns. Foodborne Diseases 2nd Ed. Pgs 55 – 67