

APPROVED EQUIPMENT

COPPER/LEAD POISONING

What Happened?

During the summer of 1994, Rhode Island State officials received five separate reports of children vomiting minutes after drinking frozen lemonade. Investigation revealed that the lemonade was frozen in Emory Thompson ice cream freezers that contained 'dairy metal' dashers. The 'dairy metal' contained about 60 percent copper and up to 9.5 percent lead. Apparently the copper and lead was leached out of the metal over a long holding period.

What Foods are at Risk?

Any high acid food processed in equipment containing 'dairy metal' is at risk. The risk increases as the contact time increases. Lemonade is of particular concern as it has a pH range of 2.7-3.0. Yogurt, sherberts, popsicle's and juices are also high acid foods.

What Can Be Done?

Equipment should be reviewed to determine if and where 'dairy metal' is being used. The process should be discussed with equipment suppliers when 'dairy metal' is found to contact high acid products. Wherever possible, the 'dairy metal' should be replaced with more appropriate materials, such as stainless steel. Any new equipment purchases should comply with applicable sections of the 3A Sanitary Standards.

What are the Symptoms of Copper and Lead Poisoning?

Acute copper and lead poisoning cause nausea, vomiting, abdominal pain, shock, and diarrhea or black/bloody stools. Long term exposure to sub-acute levels can cause death.

For further information contact the
Dairy Plant Specialist at
Food Protection Services

604.707.2440

Revised June 16, 2003

