

Screening Baby Formula with Agilent Insight Series Alarm Resolution Systems



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False alarm rate of 0.067% for baby formula

Travelling with a baby or young child can be challenging, especially when passing through airport security checkpoints. To help ease this stress, exemptions to standard regulations allow children to carry essential food and drink items. However, there are still restrictions on the volume and state (liquid/solids) of these items. Government and regulatory guidance often aims to minimize contamination risks, particularly with regard to milk.

The Agilent Insight Series alarm resolution systems use spatially offset Raman spectroscopy to scan through closed containers to identify potential threats. This application brief presents results of a study conducted using the Agilent Insight300M and Agilent InsightBLS instruments to screen commercially available baby formula, both frozen and liquid, in a range of containers.

Baby formula testing method

This study investigated the false alarm rate when screening baby milk using the Insight Series (Insight300M and InsightBLS). Different formula types were used, each made in accordance with three age ranges as listed by the manufacturer (Table 1). Milk volumes screened were between 50 and 500 mL in various containers (Figure 1). These included silicone bags, PE, HDPE, and PET plastic types. Overall, 1,480 scans over two instruments were performed, with only one false alarm (subsequently cleared). This provides a false alarm rate of baby milk of 0.067%, with essentially zero systematic alarms.

Table 1. Milk types and states investigated in this study. The percentage of scans is indicated in brackets.

Milk Types Investigated	States Screened (% of Scans)
State	<ul style="list-style-type: none">– Frozen (43%)– Liquid (57%)
Strength of Formula	<ul style="list-style-type: none">– Birth to 2 weeks (54%)– 4 months (21%)– 12 months (18%)– Other (7%)
Milk Type	<ul style="list-style-type: none">– Regular formula (23%)– Cow's milk allergy (23%)– Lactose free (23%)– Colic and constipation (24%)– Semiskimmed cow's milk (7%)

Insight Series' suitability for screening baby formula

The Agilent Insight300M and Agilent InsightBLS exhibited a false alarm rate of only 0.067% from 1,480 scans of liquid and frozen baby formulas, in various container types. This success was achieved using a range of volumes exceeding the typical liquid limit of 100 mL. The Insight Series can help speed up and alleviate stress when traveling with young ones, regardless of country- or airport-specific rules.



Figure 1. A selection of the containers screened containing baby milk formula.



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