

Fact Sheet 001

RapiScreen Dairy is proven on a wide range of organisms

The RapiScreen Dairy kit can determine the presence of microbial contamination in a diverse range of dairy and beverage products. The kit can detect a wide variety of micro-organisms which have been found to contaminate these types of products. The following organisms have been detected after inoculation at low levels (10-100CFU/sample) into various dairy and beverage products and incubation for 48 hours.

Detection of a wide range of spoilage organisms with RapiScreen Dairy kit

Organism	Classification
<i>Staphylococcus aureus</i>	Gram Positive
<i>Bacillus subtilis</i> <i>Bacillus cereus</i>	Gram Positive, Spore Former
<i>Escherichia coli</i> <i>Pseudomonas aeruginosa</i> <i>Salmonella typhimurium</i> <i>Gluconacetobacter liquifaciens</i>	Gram Negative
<i>Saccharomyces cerevisiae</i>	Yeast

Inoculated products generated relative light units (RLU) greater than three times that for a non-inoculated control product.

The RapiScreen Dairy kit has proven effective at detecting a wide range of commonly encountered micro-organisms.

Fact Sheet 002

RapiScreen Dairy limit of detection

The limit of detection for the RapiScreen Dairy kit has been demonstrated to be less than 10 organisms per product volume. This has been established by diluting overnight cultures to a theoretical level of less than 10 organisms per inoculum added to a product container. Product containers were then incubated at 30°C for 48 hours. Inoculum levels were confirmed by spread or pour plates.

Detection of low level organism inoculation (<10cfu/product)

Organism	Inoculum (cfu)	Product (100ml)	Innovate Result
<i>Bacillus subtilis</i>	2.7	Semi-skimmed UHT Milk Coffee Cream Chocolate Milk	Positive
<i>Bacillus cereus</i>	8.7	Semi-skimmed UHT Milk Coffee Cream Chocolate Milk	Positive
<i>Escherichia coli</i>	2.1	Semi-skimmed UHT Milk Coffee Cream Chocolate Milk	Positive
<i>Pseudomonas aeruginosa</i>	7.5	Semi-skimmed UHT Milk Coffee Cream Chocolate Milk	Positive
<i>Salmonella typhimurium</i>	1.8	Semi-skimmed UHT Milk Coffee Cream Chocolate Milk	Positive
<i>Staphylococcus aureus</i>	4.1	Semi-skimmed UHT Milk Coffee Cream Chocolate Milk	Positive

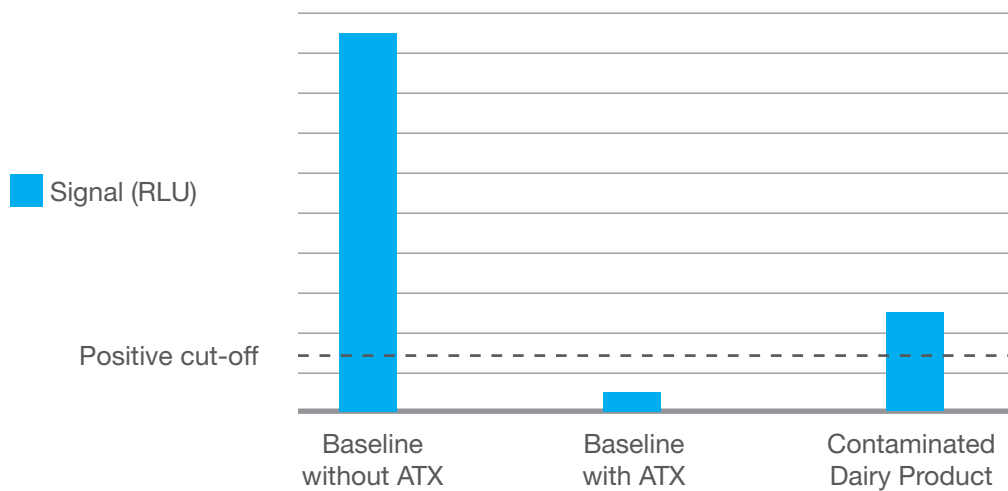
The RapiScreen Dairy kit has proven a limit of detection of less than 10 organisms per product volume.

Fact Sheet 003

ATP depletes non-microbial ATP

Many dairy and beverage products contain high levels of non-microbial ATP that must be reduced in order to accurately detect microbial ATP. The RapiScreen Dairy kit contains the reagent ATX to deplete non-microbial ATP prior to extraction and detection of microbial ATP. A 10 minute ATX treatment reduces background noise (relative light unit values) to a low level enabling detection of microbial ATP as shown in Figure 1. Table 1 shows stabilized relative light unit baselines for a variety of products with ATX treatment.

Detection of micro-organisms after depletion of non-microbial ATP



ATX treatment of a variety of dairy products

Product	No ATX Treatment (RLU)	10 min. ATX Treatment (RLU)
Semi-skimmed Milk	30	6
Full Fat Milk	21	4
Flavored Milk	2	2
Flavored Cream	1	2
Chocolate Milk	1	2
Cream	137	41
Sweetened Cream	150	23
Spray Cream	92	9
Milkshake Mix	192	15
Rice Milk	34	1
Soy Milk	871	3
Custard Pudding	576	2

The RapiScreen Dairy kit depletes non-microbial ATP effectively, allowing sensitive detection of micro-organisms.

Fact Sheet 004

RapiScreen Dairy is proven on a wide range of products

The RapiScreen Dairy kit has been shown to detect microbial contamination successfully in a wide range of dairy and beverage products from a large number of manufacturers worldwide. Products are generally assessed for suitability in terms of depletion of non-microbial ATP and the effect of the product on the bioluminescence signal. The ability of the products to support microbial growth is also assessed by inoculating low levels of selected microorganisms, incubating and subsequent testing by the Innovate method.

Examples of products tested with RapiScreen Dairy Kit

Products		
Cheese Sauce	Milk, Coconut	Non-dairy Creamer
Chicken Broth	Milk, Condensed	Nutrition Drink
Chocolate Milk	Milk, ESL	Pudding
Chocolate Protein Shake	Milk, Flavored	Soups and Sauces
Cold Brew Coffee	Milk, Full-fat	Soy Cacao Drink
Creamer Sticks	Milk, Low-fat	Soy Coffee Drink
Heavy Cream	Milk, Nut	Soy-based Meal Replacement
Ice Cream Mix	Milk, Oat	Sport Drink
Ketchup	Milk, Rice	Tea Concentrate
Keto Oil Product	Milk, Skim	Tea, Green
Liquid Cheese	Milk, Soy	Tea, Iced
Meal Replacement Drink	Milk Tea	Tomato Paste
Milk, Almond Unsweetened	Milk, Whole	Tomato Soup
Milk, Chocolate	Mustard	Vegetable Puree