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## LEBOWITZ PROTOCOL TEST KIT (100 vials)

Product Code 9100

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

First available August 2013; last updated February 2020

Lipid Test Kit vials removed 2017 (and some vials moved to a different order).

1. Mixed Fungus 1
2. Mixed Fungus 2
3. Mixed Fungus 3
4. Mixed Candida
5. Mixed Bacteria 1
6. Mixed Bacteria 2
7. Mixed Bacteria 3 - added October 2016
8. Mixed Mycoplasma
9. Helicobacter Pylori
10. Mixed Babesia Plus
11. Mixed Bartonella
12. Mixed Borrelia
13. Mixed Parasite 1
14. Mixed Internal Parasite 2
15. Mixed External Parasite 2
16. Mixed Parasite 3 (Parasite 3 Kit) – added May 2015
17. Mixed Worms – added March 2018
18. Mixed Protozoa – updated August 2015
19. Mixed Rickettsia

20. Mixed Chlamydia
21. Mixed Virus 1 – updated May 2007
22. Mixed Virus 2 - updated October 2014
23. Mixed Virus 3 – Updated February 2020
24. Mixed SIBO – added November 2015
25. Virus + 4 – added March 2018 (EBV, CMV, Herpes Zoster and Human herpes 6)
26. Mixed Mycotoxins
27. Mixed Biofilms – updated August 2018
28. Provocation Vial - added March 2016 (contains fibrin, fibrinogen, thrombin, prothrombin and estrone)
29. Oxalic Acid – added February 2020
30. Lectin Master – added July 2017
31. Lactose
32. Casein
33. Gliadin
34. Zein
35. Solanine / Alpha Solanine
36. Albumin (from egg) / Ovalubin
37. Caffeine
38. Theobromine
39. Paraxanthine / 1,7-Dimethylxanthine
40. Theophylline
41. Beef
42. Chicken
43. Garlic
44. Onion
45. Rice, Long Grain, Brown, Organic
46. Soya Bean, Organic
47. Orange
48. Oats, Organic
49. Peanut
50. Cane Sugar
51. Fibrin
52. Fibrinogen
53. Prothrombin
54. Thrombin
55. Plasmin
56. Plasminogen
57. Antithrombin III
58. Tissue Plasminogen Activator
59. Homocysteine
60. Glyphosate – added July 2017
61. Mixed Industrial & Environmental 1-2
62. Mixed Industrial & Environmental 3
63. Mixed Industrial & Environmental 4 – added October 2014
64. Mixed Pesticides 1
65. Mixed Pesticides 2
66. Mixed Pesticides 3
67. Mixed Chemicals & Inhalants
68. Mixed Dental
69. Mixed Personal Care
70. Mixed Food Additives

71. Aluminum - revised March 2018
72. Arsenic - revised March 2018
73. Barium – added March 2018
74. Beryllium- revised March 2018
75. Boron- revised March 2018
76. Cadmium - revised March 2018
77. Chromium – added March 2018
78. Copper - revised March 2018
79. Gadolinium – added March 2018
80. Gold – added March 2018
81. Iron – added March 2018
82. Lead - revised March 2018
83. Lithium – added March 2018
84. Manganese – added March 2018
85. Mercury - revised March 2018
86. Nickel - revised March 2018
87. Platinum – added March 2018
88. Silicon – added March 2018
89. Silver – added March 2018
90. Sulfur– added March 2018
91. Tin – added March 2018
92. Titanium - revised March 2018
93. Zinc – added March 2018
94. Zirconium – added March 2018
95. Estrone (Biochemical/Hormone Kit)
96.  $\beta$ -Estradiol/17 Beta-Estrodiol (Biochemical/Hormone Kit)
97. Estriol (Biochemical/Hormone Kit)
98. Progesterone (Biochemical/Hormone Kit)
99. Testosterone (Biochemical/Hormone Kit)
100. Histamine (Biochemical/Hormone Kit)

This is sold as a whole kit only. No composites from this kit are sold separately unless you already own that kit. Composites do yield false negative test results at times and it can be very advantageous to own the complete kit. Optimum results are obtained when used in conjunction with the testing protocols of Michael Lebowitz DC available on his teaching DVD's.

## MIXED FUNGUS 1 VIAL

### Found in Fungi 1 Test Kit (product code 8027)

Name	Medically Recognized Possible Symptoms & Effects	Comments
Aflatoxins	acute liver damage, liver cirrhosis, liver cancer	Poisonous alkaloids produced by <i>Aspergillus flavus</i> . Exposure usually via contaminated grain, dried fruit and peanuts, but can also be on animal products. Carcinogenic to
<i>Aspergillus Fumigatus</i>	coughing and wheezy attacks, bronchiectasis, aspergilloma, invasive aspergillosis	Found in soil, dust and decaying vegetable matter. Also common in cellars/basements, kitchens and bathrooms. Causes more infections
<i>Aspergillus Niger</i>	coughing and wheezy attacks, bronchiectasis, aspergilloma, invasive aspergillosis	Found in soil, dust and decaying vegetable matter. Primarily in US and tropics. Used in the production of citric acid, E310, E311 and E312. Produces mycotoxins ochratoxin A, and malformin.
<i>Candida Albicans</i>	most commonly affects the vagina (thick, white discharge), but also affects other mucus membranes, such as inside the mouth (sore, raised patches), or moist skin.( itchy red rash with flaky white patches); may also affect the intestinal tract.	diabetes and the hormonal changes in pregnancy or when taking oral contraceptives may encourage it; some women with vaginal candida have no symptoms
<i>Candida Glabrata/ Torulopsis Glabrata</i>	Similar vaginal symptoms to <i>candida albicans</i>	appears to be on the increase
<i>Candida Krusei</i>	a form of <i>candida</i> particularly present in men, and those who have a compromised immune system, such as in HIV	appears to be on the increase
<i>Epidermophyton Floccosum</i>	Tinea cruris (ringworm of crotch)	
<i>Microsporum Gypseum</i>	Causes Tinea (ringworm).	
<i>Pneumocystis Carinii/ Pneumocystis</i>	pneumonia	The most common opportunistic infection in people with HIV infection.
<i>Trichophyton Rubrum</i>	Tinea pedis (athlete's foot), Tinea cruris (groin)	
<i>Trichophyton Terrestre</i>	Tinea	

## MIXED FUNGUS 2 VIAL

### Found in Fungi 2 Test Kit (product code 8028)

Name	Medically Recognized Possible Symptoms & Effects	Comments
Acremonium/ Cephalosporium Mix	causes respiratory infections and fungal nail infections	particularly found on wheat, but also on dead plant material and soil
Alternaria Mix	a common allergen; infections mainly in the immuno-suppressed	A widespread airborne mold occurring both indoors and out; particularly abundant in decaying plant matter, indoor horizontal surfaces and window frames. Produces mycotoxins alfernariol, altertoxin and tenuazonic acid.
Aspergillus Mix	common allergen; opportunistic infections when immuno-suppressed, mainly affecting lungs; can produce symptoms that resemble asthma	produces a mycotoxin called gliotoxin; commonly isolated from soil, plant debris including compost heaps, and indoor air environment; used to culture soy foods such as miso and is a source for 'vegetable based' digestive enzymes
Aureobasidium Pullulans / Pullularia	allergic reactions common	Pink or black mildew found where moisture accumulates indoors, often in carpets and mattresses, and on window frames; also found in/on soil, forest soils, fresh water, aerial portion of plants, fruit, marine estuary sediments and wood.
Botrytis Cinerea	allergic reactions possible	found on stored fruit and vegetables, on decaying plants and in soil.
Chaetomium Globosum	opportunistic infections when immuno-suppressed; may cause nail infections	Found in soil, air, plant debris and dung; also found in in kitchens, bathrooms, mattresses and carpets. Produces mycotoxins chaetoglobosin and sterigmatocystin.
Cladosporium Mix	common allergen	Widely distributed in air and rotten organic material; frequently isolated as a contaminant on foods; a common airborne mold on the US east coast. Found in kitchens and bathrooms, and on wallpapers and window frames. Produces mycotoxin cladosporic acid.
Curvularia Specifera	may cause infections in both humans and animals	found on soil, plants, and cereals particularly in tropics and soil-tropics
Epicoccum Mix	common allergen	mold widely distributed and commonly isolated from air, soil and foods tuff; also found on textiles
Fusarium Mix	allergic reactions; infections in the immuno-suppressed	Widely distributed on plants and in the soil; found in normal mycoflora of commodities, such as rice, bean, soybean, and other crops. Found on wallpaper and in cellars/basements. Produces mycotoxins trichothecene and zearalenone.
Geotrichum Candidum	lung infections have been reported, and less commonly infections of mouth, vagina, skin and digestive tract	part of normal human flora, can be isolated from sputum and faeces; very common; found worldwide in soil, water, air, and sewage, as well as in plants, cereals, and dairy products
Gliocladium Fimbriatum		Worldwide distribution in soil and on plant debris. Produces mycotoxin sgliotoxin.
Helminthosporiumm		Molds of grasses
Microsporum Canis	Tinea capitis and Tinea corporis (ringworm) in humans	also affects cats and dogs
Monotspora Brevis		

Name	Medically Recognized Possible Symptoms & Effects	Comments
Mucor Mix	common allergen; uncommon infection in immuno-suppressed	fungus found in soil, plants, decaying fruits and vegetables
Mycogone Sp		causes disease in commercial mushrooms
Neurospora Sitophila		pink mold found on mushrooms
Penicillium Mix	allergies and pneumonitis	Produces mycotoxins; widespread; found in soil, decaying vegetation, and the air; common contaminants on food; found in house dust, wallpaper, moist chipboard and water-damaged fabrics, mattresses and carpets.
Phoma Mix	allergies and pneumonitis	soil and plant material; on shower curtains, walls, tiles and reverse side of linoleum; may be found on foods such as rice and butter
Rhizopus Stolonifer	allergies and lung problems	found in soil, wood mills, decaying fruit and vegetables, animal dung, and old bread
Rhodotorula Rubra		found in air, soil, lake, ocean water, and dairy products
Scopulariopsis Sp	may cause infections in both humans and animals	Soil, plant material, feathers, and insects. Commonly found on mattresses and carpets.
Spondylocladium Atrivirens		problem on potatoes
Sporobolomyces	allergies; may cause infections in both humans and animals	air, tree leaves, and orange peel
Sporotrichum Pruinosum		widely distributed in decaying wood and soil
Stemphylium Mix	Allergies and (but rarely) sinusitis	widely distributed on decaying vegetation, wood and in the soil; rare indoors
Trichoderma Mix	allergies; opportunistic infections in immuno-suppressed; becoming more of a problem	Widely distributed in the soil, plant material, decaying vegetation, and wood; paper (including wallpaper) and unglazed ceramics. Produces mycotoxins trichodermin and gliotoxin.
Trichophyton Mix	One of the leading causes of hair, skin, and nail infections in humans (ringworm, athlete's foot etc.)	found in the soil; also affects animals
Verticillium Albo-Atrum	a rare agent of mycotic keratitis (an eye infection)	decaying vegetation and soil; affects trees (particularly maples)

**References:**

Doctor Fungus: <http://www.doctorfungus.org>  
Mycology Online: [http://www.mycology.adelaide.edu.au/Fungal\\_Jungle/welcome.html](http://www.mycology.adelaide.edu.au/Fungal_Jungle/welcome.html)  
Environmental Microbiology Laboratory Inc: <http://www.emlab.com>  
Mold & Bacteria Consulting Laboratories: <http://www.moldbacteria.com/mold-types.html>



## MIXED FUNGUS 3 VIAL

### Found in Fungi 3 Test Kit (product code 8088)

Name	Comments
Aspergillus Carneus	Produces mycotoxin citrinin.
Aspergillus Clavatus	Commonly isolated from soil, plant debris, and indoor air environment. Produces the mycotoxins cytochalasin and patulin.
Aspergillus Flavus	Commonly isolated from soil, plant debris, and indoor air environment. Produces the mycotoxins aflatoxin B and cyclopiazonic acid. A rare cause of pulmonary disease.
Aspergillus Glaucus	Commonly isolated from soil, plant debris, and indoor air environment.
Aspergillus Nidulans	Commonly isolated from soil, plant debris, and indoor air environment. Produces the mycotoxin sterigmatocystin.
Aspergillus Ochraceus	Common indoors. Produces mycotoxins ochratoxin A and penicillic acid.
Aspergillus Ustus	Found in the soil and also on cardboard, paper, rubber, birds, and in dried fruits, nuts, cheeses, citrus fruits, seeds and grains. Produces mycotoxins ausdiol, austamide, austocystin and brevianamide.
Aspergillus Versicolor	Commonly found on mattresses and carpets and in cellars/basements. Produces mycotoxin sterigmatocystin. Prevalent in over 5% of fungal infections of toenail, particularly involving big toe.
Bipolaris	Linked to allergic and chronic sinusitis, and chest infections. Produces mycotoxins cytochalasin, sterigmatocystin and sporidesmin.
Blastomyces Dermatitidis	Found primarily in the Mid West and Northern United States and Canada. Causes blastomycosis (lung infection, chest pains, coughs, fever, painless sores). Produces mycotoxins cytochalasin, sporidifesmin and sterigmatocystin.
Coccidioides Immitis	Most commonly seen in the desert regions of the southwestern United States, and in Central and South America. It can cause a disease called coccidioidomycosis (Valley Fever).
Cryptococcus Neoformans	Found in soil throughout the world. Can cause lung infections (cryptococcosis).
Cylindrocarpon	Found in wet indoor environments. Produces mycotoxin trichothecene.
Memnoniella	Found in soil and plant debris but also inside buildings, especially on cellulose-based materials. Often found growing with Stachybotrys, but smaller so enters lungs more easily. Most typical symptoms are throat irritation, eye and nose itchiness and rashes. Produces mycotoxins trichothecenes.
Myrothecium	Often found on materials such as paper, textiles, canvas and cotton. Produces mycotoxin trichothecene.
Penicillium Aurantiogriseum	Commonly found on mattresses and carpets. Produces mycotoxin Penicillic acid.
Penicillium Chrysogenum	Commonly found on mattresses and carpets.

Name	Comments
Penicillium Nordicum	Commonly isolated from fermented meat products such as cured ham and dairy products. Produces mycotoxin ochratoxin A.
Penicillium Verrucosum	Found on cereals (e.g. wheat, barley). Produces mycotoxin citrinin and ochratoxin A.
Pithomyces	Often found growing in soil, decaying leaves and grasses. Produces mycotoxin sporidesmin.
Rhizopus	Found on mature fruits and vegetables, jellies, syrups, bread, peanuts, leather and tobacco. Produces mycotoxin rhizonin.
Sporothrix Schenkii	Found throughout the world in soil, plants, and decaying vegetation. Skin lesions characteristically following lymphatic pathways.
Stachybotrys Chartarum /Stachybotrys Atra, Stachybotrys Alternans Or Stilbospora Chartarum	Also known as black mold. Commonly found on wallpapers. Also on paper, cardboard, wallboard, wall framing when persistently wet. Linked to sick building syndrome. Produces mycotoxins roridin E, satratoxin G & H and trichothecene.
Walleimia	Found worldwide, and typically contaminate low-moisture foods, carpets and mattresses. Produces mycotoxin walleminol.

## MIXED CANDIDA VIAL

### Found in Candida Kit (product code 8095)

Name	Comments
Candida Albicans	A normal constituent of the human flora. Is a commensal of the skin and the gastro-intestinal and genito-urinary tracts. It is responsible for the majority of Candida bloodstream infections (candidemia).
Candida Dubliniensis	Most commonly found from in immuno-compromised individuals, such as AIDS, chemotherapy, or organ trans plant patients.
Candida Glabrata / Torulopsis glabrata	Was considered a relatively non-pathogenic part of the human flora, but now problems from it on increase particularly among immuno- compromised individuals.
Candida Guillermondi	Sometimes found on human skin; found in infections of the skin in immuno-compromised individuals.
Candida Krusei	On the increase. Most common in hospital environment. Used in the manufacture of chocolate.
Candida Lusitaniae	Affects people with other major health problems, e.g. bone marrow transplants and chemotherapy.
Candida Parapsilosis	Part of the normal flora of mucus membranes of the mouth, gut and vagina. One of the fungi most frequently isolated from the human hands. A significant cause of sepsis and of wound and tissue infections in immuno-compromised patients.
Candida Pseudotropicalis / Candida Kefyr	A rare cause of candidiasis. Usually associated with superficial cutaneous manifestations rather than systemic disease. It has been isolated from nails and lungs.
Candida Rhodotorula	Has been found on the skin between the toes.
Candida Rugosa	Possibly on increase.
Candida Sitophila	Uncommon infection in humans. Has been found at the sites of conjunctivitis and peritonitis.
Candida Stellatoida	Sometimes found in the human vaginal tract with or without symptoms of vaginitis.
Candida Tropicalis	Part of the normal human flora. When flora unbalanced, can get excessive gas, constipation, diarrhea, indigestion, abdominal pain, and a variety of sudden and intense food sensitivities or allergies.

## MIXED BACTERIA 1 VIAL

Commensal= a bacteria which normally lives in or on the body and is considered medically to be harmless

Nosocomial infection: contracted in hospital

### Found in Bacteria 1 Kit (product code 8003)

Bacteria	Medically Recognized Possible Symptoms & Effects	Comments
Acinetobacter	respiratory symptoms, nosocomial infections	ubiquitous in environment
Actinomyces	liver abscess, fever, abdominal pain, actinomycosis	Actinomyces Israelii commensal of human mouth
Bacilli Gram Positive and Negative		
Bacillus Megaterium	meningitis	present in the throats of about 10% of the population
Bacillus Subtilus	produces sticky yellow patches on bread	
Bordetella Pertussis	whooping cough	
Borrelia Burgdorferi	Lyme disease (Lyme Borreliosis)	vector is a tick which is dependent on wild rodents and deer
Brucella Abortus	influenza- like symptoms, fever, arthritis, headaches, irritability, Insomnia and confusion, septicemia	from cattle; unpasteurised dairy products
Campylobacter	food poisoning, diarrhea	On the increase. Types C. jejuni and c. fetus; found in raw meat, untreated water and unpasteurised dairy products
Clostridium Botulinum	botulism, muscle paralysis, vomiting, tiredness, food poisoning	caused by the neuro-toxin of CB
Clostridium Tetani	muscle rigidity followed by spasmodic muscle contraction with pallor and sweating	in soil
Clostridium Welchii	cellulitis	
Cocci Gram Positive and Negative		
Corynebacterium Diphtheriae	diphtheria tonsillitis / pharyngitis, croup	
Escherichia Coli	meningitis in babies, diarrhea, liver abscess, fever, abdominal pain, urinary tract infection	commensal of human intestine; popularly known as E. Coli; found in raw and undercooked meat, raw vegetables and unpasteurised milk
Gardnerella Vaginalis	occasionally slightly smelly, non-itchy discharge	commensal of female vagina
Haemophilus Influenzae	conjunctivitis, difficulty in breathing, sinusitis, otitis media, pneumonia, meningitis in children	Commensal in human upper respiratory tract. 6 types; type b causes meningitis
Helicobacter	gastritis, dyspepsia, peptic ulcer, possibly gastric	Over 80% of individuals infected with the

<b>Bacteria</b>	<b>Medically Recognized Possible Symptoms &amp; Effects</b>	<b>Comments</b>
Pylori	cancer	bacterium are asymptomatic and it may play an important role in the natural stomach ecology.
Legionella Pneumophila	respiratory symptoms, pus in lungs, lung abscess, Legionnaires' disease, hepatitis	nosocomial infection; a widespread naturally occurring aquatic organism, transmitted by airborne droplets often from air-conditioning units
Leptospira	high fever, headache, myalgia, conjunctivitis, Weil's disease	Transmitted by rodents and infected water. 2 soil-species
Listeria Monocytogenes	meningitis in babies	unpasteurised dairy products and inadequately cooked meat, ubiquitous in soil
Mycobacterium Bovis	pneumonia, tuberculosis	
Mycobacterium Leprae	Leprosy	endemic in Africa, India, SE Asia, Central and South America
Mycobacterium Tuberculosis	T.B., conjunctivitis, sinusitis, pneumonia, childhood pneumonia, tuberculosis, chronic hepatitis, urinary tract infection	
Mycoplasma Pneumoniae	croup, otitis media, pus in lungs, childhood pneumonia, acute hepatitis	commensal of human respiratory tract
Neisseria Gonorrhoea	gonorrhoea, conjunctivitis, tonsillitis / pharyngitis, pain on passing urine, discharge, pain in abdomen	
Neisseria Meningitidis / Meningococcus	conjunctivitis, tonsillitis / pharyngitis, pneumonia, meningitis, meningitis in children	in western countries group B is predominant organism followed by C. Group A in parts of Africa, Middle East and India
Pseudomonas Aeruginosa	urinary tract infection, respiratory symptoms, otitis media, lung abscess, meningitis in babies, wound infection	commensal of human intestinal flora
Salmonella	food poisoning, diarrhea	on increase; found in raw meat, poultry, eggs, raw unwashed vegetables, unpasteurised dairy products
Salmonella Paratyphi	typhoid	3 types (A, B & C)
Salmonella Typhi	typhoid fever, liver abscess, fever, abdominal pain, food poisoning	
Shigella	diarrhea, bacillary dysentery	4 soil-groups: S. dysenteriae (developing countries), S. flexneri (developing countries), S. boydii, S. sonnei (endemic in developed countries)
Staphylococcus Aureus	respiratory symptoms, conjunctivitis, styes, difficulty in breathing, otitis media, pus in lungs, pneumonia, childhood pneumonia, breathlessness, chest pain, endocarditis, meningitis in elderly, brain abscess, cellulitis, food poisoning, liver abscess, fever, abdominal pain, urinary tract infection	common skin commensal; some strains are now becoming antibiotic resistant
Staphylococcus Epidermidis	Breathlessness, chest pain, endocarditis, urinary tract infection	
Streptococcus Lactis	Found commonly as a contaminant in milk and dairy products; a common cause of souring and coagulation of	

<b>Bacteria</b>	<b>Medically Recognized Possible Symptoms &amp; Effects</b>	<b>Comments</b>
	milk; some strains produce nisin, a powerful antibiotic that inhibits growth of many other gram-positive organisms.	
Streptococcus Agalactiae / Group B Streptococcus	neonatal infection, septicaemia, meningitis, nosocomial infection	commensal in intestine and female genital tract
Streptococcus Mutans	dental caries	
Streptococcus Pneumoniae	conjunctivitis, difficulty in breathing, sinusitis, otitis media, pus in lungs, pneumonia, childhood pneumonia, meningitis, meningitis in elderly and children, brain abscess; associated with increased risk of fatal heart complications including heart failure and heart attacks.	commensal of human upper respiratory tract
Streptococcus Pyogenes	sore throat, tonsillitis / pharyngitis, difficulty in breathing, sinusitis, otitis media, pus in lungs, lung abscess, pneumonia, rheumatic fever, scarlet fever, impetigo, cellulitis, liver abscess, fever, abdominal pain, toxic shock, septicaemia	
Streptococcus Viridans	breathlessness, chest pain, endocarditis	
Vibrio Cholera	cholera	growing problem in South America, Middle East, Africa and Asia
Yersinia Pestis	pneumonia, plague	
Anthrax	affects the skin and lungs	spread from livestock; extremely rare in developed countries; but a possible agent of biological warfare
MRSA/ Methicillin Resistant Staphylococcus Aureus	a version of staph aureus that is resistant to antibiotics; can cause death particularly in weakened people	most cases occur in hospital patients
Bacillus Cereus	food poisoning	often associated with fried rice that has been cooked and then held at warm temperatures for several hours
Clostridium Perfringens	pneumonia	widely distributed in the environment and frequently occurs in the intestines of humans and many domestic and feral animals
Enterobacter Aerogenes		found in human digestive tract
Klebsiella Pneumoniae	urinary tract infections	pneumonia and urinary tract infections; tends to affect people with underlying diseases, particularly in hospital
Micrococcus Luteus		inhabits mammalian skin; opportunistic infection
Proteus Vulgaris	urinary tract infections	
Salmonella Enteritidis	fever, abdominal cramps, and diarrhea	from contaminated eggs
Streptococcus Mitis / Streptococcus	Can cause endocarditis.	Part of the normal mammal flora; found in mouth, throat, and nasopharynx.

Bacteria	Medically Recognized Possible Symptoms & Effects	Comments
Mitior		
Borrelia Vincent	causes severe ulcerating gingivitis (trench mouth)	Typically found in those with poor oral hygiene but can also occur as a result of stress, cigarette smoking and poor nutrition; also can be found in those with serious illnesses.
Clostridium Difficile	diarrhea, colitis, peritonitis	often after normal gut flora is eradicated by the use of antibiotics; infection often occurs in hospital and in nursing homes; some adults have low numbers of the bacteria without any symptoms; common in the intestine of babies and infants, but does not cause disease because its toxins do not damage their immature intestinal cells.
Mycobacterium Paratuberculosis	found in the intestinal tract of some people with Crohn's disease (about 7.5% of those studied); been linked to rheumatoid arthritis; found in less than 1% of healthy individuals (Food Safety Authority of Ireland)	in the USA, 40% of large dairy herds are infected with Mycobacterium paratuberculosis; can survive pasteurization.
Neisseria Catarrhalis / Moraxella Catarrhalis / Micrococcus Catarrhalis / Branhamella Catarrhalis	a common cause of otitis media and sinusitis and an occasional cause of laryngitis; causes bronchitis or pneumonia in children and adults with underlying chronic lung disease	commensal in nasopharynx

**References:**

- B. K. Mandal et al      *Infectious Diseases*  
G.O. Cowan & B.J. Heap      *Clinical Tropical Medicine*  
D J Weatherall et al      *Oxford Textbook of Medicine Volume 1*  
BMA      *Complete Family Health Encyclopaedia*  
P. Cox & P. Brusseau      *Secret Ingredients*

## MIXED BACTERIA 2 VIAL

### Found in Bacteria 2 Kit (product code 8093)

Name	Comments
Actinomyces Viscosus	Part of the human oral flora, occurring around the teeth, gums and throat in healthy humans. Causes dental caries particularly of the roots of teeth. Can cause abscesses in the mouth, lungs, or the gastro-intestinal tract.
Aggregatibacter Actinomycetemcomitans / Actinobacillus Actinomycetemcomitans	Part of the human oral flora; also found in severe infections in the oral cavity, mainly the periodontium.
Bacteroides Fragilis	Involved in 90% of anaerobic peritoneal infections of the abdominal cavity.
Burkholderia Cepacia	Tends to affect people who have weakened immune systems or chronic lung diseases, particularly cystic fibrosis; a known cause of infections in hospitalised patients.
Clostridium Septicum	Causes gangrene. Generally associated with gastro-intestinal or hematologic malignancies. An association Exists with colon carcinoma.
Eikenella Corrodens	A commensal of the human mouth and upper respiratory tract. An opportunistic human pathogen, leading to serious diseases such as periodontitis, osteomyelitis, meningitis, empyema, and endocarditis.
Enterococcus Faecalis / Streptococcus Faecalis	Can cause life-threatening infections in humans, especially in the hospital environment. Frequently found in root canal-treated teeth. Can cause endocarditis and bacteremia, urinary tract infections, meningitis, and other infections. Among the main constituents of some probiotic food supplements.
Enterococcus Faecium	Can be commensal in the human intestine, but it may also be pathogenic, causing diseases such as neonatal meningitis.
Fusobacterium Nucleatum	Found in the mouth and upper respiratory tract. A key component of dental plaque. Possible role in periodontal disease and colon cancer. Occasional cause of abscesses and blood infections.
Group A Streptococcus / GAS	Often found in the throat and on the skin. Illnesses include strep throat and occasionally invasive GAS disease. People may be carriers and experience no health problems themselves.
Group B Streptococcus /GBS	In new-borns most commonly causes sepsis (infection of the blood), pneumonia and sometimes meningitis. In adults causes bloodstream infections, pneumonia, skin and soft tissue infections, and bone and joint infections.
Mycobacterium Abscessus	Causes infections of the skin and the soft tissues under the skin. Also a cause of serious lung infections in those with various chronic lung diseases, such as cystic fibrosis. Has been known to contaminate medications and products, including medical devices.
Mycobacterium Intracellulare	Causes lung diseases.
Mycobacterium Marinum	Causes opportunistic infections in humans when the immune system (for example) is compromised already.
Porphyromonas Gingivalis / Bacteroides Gingivalis	Part of the normal flora of the mouth, intestine and urogenital tract. Found in periodontal lesions and associated with adult gingivitis, periodontal disease and mouth abscesses; could be a risk factor for esophageal cancer. <a href="#">Link</a> Linked to
Prevotella Intermedia / Bacteroides Intermedia / Bacteroides Melaninogenicus	Involved in periodontal infections, including gingivitis and periodontitis.



Name	Comments
Propionibacterium Acnes	Lives on the skin and is linked to the skin condition acne. Largely commensal and part of the skin flora present on most healthy adult human skin.
Proteus Mirabilis	Causes 90% of all Proteus infections in humans. Approximately 25% of people have this bacterium in their faeces. Causes problems when urinary tract is disturbed (e.g. after catheterization).
Salmonella Enterica / Salmonella Choleraesuis	Causes salmonellosis; family members working with cattle or in a veterinary clinic can be source.
Salmonella Typhimurium/ Salmonella Choleraesuis Serotype Typhimurium / Salmonella Typhi-Murium/ Bacillus Typhimurium / Salmonella Typhi-Murium	Causes gastroenteritis.
Serratia Marcescens / Bacterium Prodigosum	Found on the soil. Gingival biofilm of teeth. Commonly found in the respiratory and urinary tracts of hospitalised adults and in the gastro-intestinal system of children. May cause pneumonia and urinary tract infections. Often found growing in bathrooms as a pink discoloration and slimy film.
Staphylococcus Saprophyticus	Often implicated in urinary tract infections and cystitis.
Streptococcus Salivarius	The principal commensal bacterium of the oral cavity and a normal inhabitant of the upper respiratory tract. The first bacterium that colonizes dental plaque, creating favourable conditions for other bacteria.
Treponema Pallidum	Causes diseases such as syphilis.
Ureaplasma Parvum	Can cause male urethritis, suppurative arthritis, adverse pregnancy outcomes, chorioamnionitis (inflammation of membranes in the fetus), surgical wound infections, neonatal meningitis, pelvic inflammatory diseases and pyelonephritis.
Ureaplasma Urelyticum	Part of the normal genital flora of both men and women. It is found in about 70% of sexually active humans. Has been linked to (but not confirmed) non-specific urethritis, infertility, chorioamnionitis, stillbirth, premature birth, and, in the perinatal period, pneumonia, bronchopulmonary dysplasia and meningitis.
Vancomycin-Resistant Enterococci/ VRE	Can live in the human intestines and female genital tract without causing disease; sometimes can cause infections of the urinary tract, the bloodstream, or of wounds associated with catheters or surgical procedures.
Vancomycin-Resistant Staphylococcus / VRSA	A problem for people with other underlying health conditions (such as diabetes and kidney disease), tubes going into their bodies (such as catheters), previous infections with methicillin resistant Staphylococcus aureus (MRSA), and recent exposure to vancomycin, etc.
Vibrio Parahaemolyticus	Found in brackish saltwater and causes gastro-intestinal illness (watery diarrhea often with abdominal cramping, nausea, vomiting, fever and chills). Most people become infected by eating raw or undercooked shellfish, particularly oysters.
Vibrio Vulnificus	Causes an infection (gastro-intestinal illness, fever, or shock) often after eating seafood, especially oysters or exposing an open wound to sea water.
Mixed Bacteria 2 (Ex Mycoplasma)	A single vial containing all the bacteria in this kit except for the Mycoplasma.
Mixed Mycoplasma	A single vial containing all the Mycoplasma listed in Bacteria kits 1 and 2.

## MIXED BACTERIA 3 VIAL

### Found in Bacteria 3 Kit (product code 8120)

Name	Comments
Acinetobacter Baumannii	Opportunistic pathogen, affecting people with compromised immune systems, but it is becoming increasingly important as a hospital-derived (nosocomial) infection. Referred to as 'Iraqibacter' due to its seemingly sudden emergence in military treatment facilities during the Iraq War; has continued to be an issue for veterans and soldiers who served in Iraq and Afghanistan.
Acinetobacter Baumannii, Multi-Drug Resistant (MDR-AB)	A multi-drug resistant strain (MDR-AB) <i>A. baumannii</i> is an opportunistic pathogen, affecting people with compromised immune systems, and is becoming increasingly important as a hospital-derived (nosocomial) infection.
Actinomyces Israelii	Found in the vagina, colon, and mouth. Infection is established first by a breach of the mucosal barrier during various procedures (dental, gastrointestinal), aspiration, or pathologies such as diverticulitis; causes actinomycosis (formation of painful abscesses in the mouth, lungs, or gastrointestinal tract).
Actinomyces Odontolyticus	Part of the oral flora; also found in dental plaque and in deep dental caries. Causes actinomycosis - a granulomatous infection with the formation of abscesses in the mouth, lungs, or the gastrointestinal tract. Oral actinomycosis may occur due to trauma such as a tooth extraction or bleeding gums.
Aeromonas Hydrophila	Mainly found in areas with a warm climate. Can cause gastroenteritis, mostly in young children and people who have compromised immune systems or growth problems; also associated with cellulitis. Can cause myonecrosis and eczema in people with compromised or suppressed immune systems, or in rare cases necrotising fasciitis.
Bacteroides Thetaiotaomicron	The most common bacterium found in the human colon / intestinal tract; considered an opportunistic pathogen, frequently associated with peritonitis, septicemia, and wound infections; capable of causing very serious infections, such as intra-abdominal sepsis and bacteraemia.
Bordetella Holmesii	Associated with septicaemia, endocarditis, and respiratory illness, especially in immunocompromised patients, such as asplenic or AIDS patients; often seen in conjunction with whooping cough; can cause septic arthritis.
Burkholderia Pseudomallei / Pseudomonas Pseudomallei	infects humans and animals and causes the disease melioidosis (pain in chest, bones, or joints; cough; skin infections, lung nodules and pneumonia), particularly in Thailand and northern Australia.
Campylobacter Jejuni	Commonly found in animal faeces, so infection through contaminated water and food; the most common causes of bacterial infections in humans worldwide, causing gastroenteritis and food poisoning; has been linked with subsequent development of Guillain-Barré syndrome, which usually develops two to three weeks after the initial illness.
Campylobacter Rectus	Involved with periodontal disease and can cause abscesses in the mouth.
Capnocytophaga Canimorsus	Transmission may occur through bites, licks, or even close proximity with animals. Can cause severe illness in persons with pre-existing conditions. Symptoms include mild flu-like symptoms, fever, vomiting, diarrhea, malaise, abdominal pain, myalgia, confusion, dyspnoea, headaches, and skin rashes such as exanthema. More severe cases of endocarditis, disseminated intravascular coagulation and meningitis have been reported.
Capnocytophaga Ochracea	Found in the oral cavity; contributes to early plaque formation on teeth by being a physical intermediate link between several Streptococcus species and <i>F. nucleatum</i> ; also found in some animal bite wounds.
Capnocytophaga Sputigena	Found in the oral cavity; also found in some animal bite wounds. an opportunistic pathogen in humans, especially in immunocompromised patients.
Cardiobacterium Hominis	Normally present in the mouth and upper part of the respiratory tract such as nose and throat; very rarely causes endocarditis, an infection of the heart valves.
Citrobacter Freundii	As an opportunistic pathogen, responsible for a number of significant infections; known to be the cause of nosocomial infections of the respiratory tract, urinary tract and blood. <i>C. Freundii</i> represents about 29% of all opportunistic infections.
Clostridium Tertium	Traditionally been considered non-pathogenic, but increasingly being reported as a human pathogen. Has been associated with bacteraemia, meningitis, septic arthritis, enterocolitis, spontaneous bacterial peritonitis, post-traumatic brain abscess, and pneumonia.

Name	Comments
Cronobacter Sakazakii / Enterobacter Sakazakii	In infants can cause bacteraemia, meningitis and necrotising enterocolitis; can cause wound infections or urinary tract infections; people with immunocompromising conditions and the elderly may also develop bloodstream infection. Has been found in a variety of dry foods, including powdered infant formula, skimmed milk powder, herbal teas, and starches; also been found in wastewater. Cronobacter illnesses are rare, but they are frequently lethal for infants and can be serious among people with immunocompromising conditions and the elderly.
Eikenella Corrodens / Bacteroides Corrodens	Found in the oral cavity (dental plaque) and the intestinal and genital tracts.
Enterobacter Cloacae	Part of the normal gut flora of many humans; not usually a primary pathogen, but is sometimes associated with urinary tract and respiratory tract infections.
Enterococcus Faecium - Vancomycin Resistant (VRE)	Found in the human intestine, but can be pathogenic, causing diseases such as neonatal meningitis or endocarditis. Vancomycin-resistant enterococci is resistant to the antibiotic vancomycin; sometimes called a "superbug".
Escherichia Coli - Carbapenem Resistant (CRE)	E coli strain resistant to carbapenem antibiotics; found in hospitals, nursing homes, and other healthcare settings.
Escherichia Hermannii	Generally considered non-pathogenic but has been isolated from human wounds, eye infections, periodontal lesions, and blood.
Eubacterium Yurii	Possibly involved in periodontal disease.
Francisella Tularensis	Can cause Rat bite fever and Haverhill fever; classified as a potentially bioterrorism agent by the US government. Humans can become infected through tick and deer fly bites, skin contact with infected animals, exposure to contaminated water, inhalation of contaminated aerosols or agricultural dusts.
Haemophilus Ducreyi	Causes the sexually transmitted disease chancroid, a major cause of genital ulceration in developing countries characterized by painful sores on the genitalia.
Klebsiella Granulomatis / Calymmatobacterium Granulomatis	Causes the sexually transmitted disease granuloma inguinale (or donovanosis).
Kocuria Rosea	Implicated in occasional urinary tract infections in immunocompromised patients; peritonitis.
Mycobacterium Avium Complex / MAC	Secondary infection to AIDS, HIV with symptoms similar to tuberculosis.
Mycobacterium Tuberculosis, Drug Resistant (MDR-TB And XDR-TB)	Drug- resistant strains of M tuberculosis, the bacteria that causes TB: Multidrug Resistant TB bacteria (MDR-TB) and Extensively Drug Resistant TB bacteria (XDR-TB).
Neisseria Mucosa	Part of the normal human nasopharyngeal flora and infrequently causes infections, including meningitis.
Neisseria Subflava	Found in the human upper respiratory tract; generally non-pathogenic, but can in rare cases cause post-operative meningitis.
Peptostreptococcus	Lives predominantly in the mouth, skin, gastrointestinal, vagina and urinary tracts, and compose a portion of the bacterial gut flora. Can cause brain, liver, breast, and lung abscesses, as well as generalized necrotizing soft tissue infections.
Plesiomonas Shigelloides	Can cause diarrhea/gastroenteritis.
Prevotella Copri	Helps in the digestion of food as well as helping to keep harmful bacteria at bay; a correlation with the development of rheumatoid arthritis.
Prevotella Melaninogenica	Part of the oral and vaginal flora, particularly in those who eat a lot of carbohydrates and fiber; may cause pneumonia, lung abscesses, and chronic otitis media and sinusitis.
Shigella Flexneri	Causes diarrhea.
Shigella Sonnei	Causes diarrhea.
Staphylococcus Haemolyticus, Vancomycin Resistant / VRSH	Strain that resists the antibiotic vancomycin. S haemolyticus is part of the skin flora; infection often associated with the insertion of medical devices, e.g. catheters; has tendency to form biofilms.
Staphylococcus Warneri	Part of the skin flora; rarely causes disease but may occasionally cause infection in patients whose immune system is compromised.
Stenotrophomonas Maltophilia, Multiple Drug Resistant	A multiple drug resistant strain (MDR). Infection often associated with the insertion of medical devices, e.g. catheters; a relatively unusual cause of pneumonia, urinary tract infection, or bloodstream infection; an increasing problem for people with cystic fibrosis.
Streptobacillus Moniliformis	Causes rat bite fever and Haverhill fever.
Streptococcus Pneumoniae, PRSP And DRSP	Penicillin-resistant (PRSP) and drug-resistant strain (DRSP). S pneumoniae found in the nasopharynx of healthy carriers, who do not experience any symptoms; causes bronchitis, pneumonia, rhinitis, acute sinusitis, otitis media, conjunctivitis, meningitis, bacteraemia, sepsis, osteomyelitis, septic arthritis, endocarditis, peritonitis, pericarditis, cellulitis, and brain abscesses.
Streptococcus Sanguinis / Streptococcus Sanguis	a normal inhabitant of the healthy mouth where it is particularly found in dental plaque, where it modifies the environment to make it less hospitable for other strains of Streptococcus that cause cavities, such as Streptococcus mutans. The most common cause of subacute bacterial endocarditis.
Treponema Denticola	Part of the microbial community within the mouth; associated with periodontal disease. Has also been isolated from women with bacterial vaginosis.
Veillonella	Part of the microbial community within mouth and intestine. Very occasionally implicated in cases of osteomyelitis and endocarditis.

<b>Name</b>	<b>Comments</b>
Yersinia Enterocolitica	Causes the disease yersiniosis; cquired usually by insufficiently cooked pork or contaminated water, meat, or milk; symptoms may include watery or bloody diarrhea and fever, resembling appendicitis or salmonellosis or shigellosis.

## MIXED MYCOPLASMA VIAL

Found in Bacteria 2 Kit (product code 8093)

Name	Comments
Mycoplasma Fermentans	Has been linked to Gulf War Syndrome and rheumatoid arthritis.
Mycoplasma	Can be transmitted between partners during unprotected sexual intercourse. Role in genital diseases is still
Mycoplasma	Found in the vagina; unclear if it is part of the normal flora. Found in the genito-urinary tract and is considered
Mycoplasma	Found in the urogenital and respiratory tracts. Has been linked to HIV infections.

## MIXED BABESIA PLUS VIAL

All vials are in the Lyme Test Kit (product code 8094)

Nme	Comment
Babesia Bigemina	North and South America, Southern Europe, Africa, Asia and Australia.
Babesia Bovis	Infects cattle and occasionally humans. Eradicated from the United States by 1943, but is still present in Mexico and much of the world's tropics.
Babesia Canis	
Babesia Cati	
Babesia Divergens	Has been found in Turkey, Spain, Canary Islands, Tunisia, Austria, France and Norway. Babesiosis. Infections have a much higher fatality rate (42%) than with other strains and present with the most severe symptoms: hemoglobinuria followed by jaundice, a persistently high fever, chills and sweats. If left untreated, can develop into shock-like symptoms with pulmonary oedema and renal failure.
Babesia Duncani	Can infect humans. Babesiosis.
Babesia Felis	
Babesia Gibsoni	
Babesia Herpailuri	
Babesia Jakimoni	
Babesia Major	
Babesia Microti / Theileria Microti	Common in US. Babesiosis. For 25% of cases in adults and half of cases in children, the disease is asymptomatic or mild with flu-like symptoms. Symptoms are characterized by irregular fevers, chills, headaches, general lethargy, pain and malaise.
Babesia Ovate	
Babesia Pantherae	
Anaplasma Phagocytophilum / Ehrlichia Phagocytophilum	Causes human granulocytic anaplasmosis. Symptoms may include fever, severe headaches; muscle aches (myalgia), chills and shaking, similar to the symptoms of influenza. GI symptoms occur in less than half of patients and a skin rash is seen in less than 10% of patients. It is also characterized by thrombocytopenia, leukopenia, and elevated serum transaminase levels in the majority of infected patients.
Ehrlichia Chaffeensis / Human	Causative agent of human monocytic ehrlichiosis.

## MIXED BARTONELLA VIAL

All vials are in the Lyme Test Kit (product code 8094)

Name	Comments
Bartonella Alsaticca	
Bartonella Arupensis	
Bartonella Bacilliformis	Causes Carrion's disease (Oroya fever, Verruga peruana).
Bartonella Berkhoffii	Becoming more important particularly for immuno-compromised individuals.
Bartonella Birtlesii	
Bartonella Bovis	
Bartonella Capreoli	
Bartonella Clarridgeiae	Found in domestic cats and can give humans Cat Scratch Disease
Bartonella Doshiae	May cause Cat Scratch Disease.
Bartonella Elizabethae / Rochalimaea Elizabethae	Endocarditis. Particularly among homeless IV drug users.
Bartonella Grahamii	Endocarditis and Neuro-retinitis.
Bartonella Henselae / Rochalimaea Henselae	Can cause bacteremia, endocarditis, bacillary angiomatosis, and peliosis hepatis. Causes cat scratch disease.
Bartonella Koehlerae	Human infection may be from infected cats.
Bartonella Melophagi	Dis covered in 2007 and known to infect humans.
Bartonella Muris	
Bartonella Peromyscus	
Bartonella Quintana / Rochalimaea quintana / Rickettsia quintana	Causes trench fever. Can start out as an acute onset of a febrile episode, relapsing febrile episodes, or as a persistent typhoid-type illness. Commonly seen are maculo-papular rashes, conjunctivitis, headache and myalgias, with splenomegaly being less common. Most patients present with pain in the lower legs (shins), sore muscles of the legs and back, and hyperaesthesia of the shins.
Bartonella Rochalimae	Carrion's disease-like symptoms.
Bartonella Schoenbuchii	
Bartonella Talpae	
Bartonella Taylorii	
Bartonella Tribocorum	
Bartonella Vinsonii / Rochalimaea vinsonii	On increase. Causes endocarditis, arthralgia, myalgia, headaches and fatigue.
Bartonella washoensis	May cause fever and myocarditis.

## MIXED BORRELIA VIAL

### All vials are in the Lyme Test Kit (product code 8094)

Borrelia Afzelii	Has been found in Europe, USA, Singapore, Australia and New Zealand. Medically recognized as causing Lyme's disease.
Borrelia Berbera	Found in Algeria, Tunisia and Libya.
Borrelia Burgdorferi	Found in USA, Europe, Australia, and New Zealand. Medically recognized as causing Lyme's disease.
Borrelia Carteri	Uncommon but has been found in humans in India.
Borrelia Caucasica	Found in Europe and Asia.
Borrelia Duttonii	Found in Europe and Africa. Causes Central African relapsing fever.
Borrelia Garinii	Has been found in Europe. Medically recognized as causing Lyme's disease.
Borrelia Hermsii	Associated with relapsing fever. The primary cause of tick-borne relapsing fever in North America. Also found in Europe.
Borrelia Hispanica	Found in Spain, Portugal, Morocco and central Africa.
Borrelia Kochis	
Borrelia Miyamotoi	Symptoms of relapsing fever. Found in Russia, Japan, Europe and North America.
Borrelia Morganii	
Borrelia Novyi	Found in the Americas.
Borrelia Parkeri	Human infection.
Borrelia Persica	Found in Europe and Asia.
Borrelia Recurrentis	Found in England, Ireland, USA, Canada, Mexico, Central and South America, central Asia, Africa, and around the Mediterranean.
Borrelia Tillaie	Found in Europe.
Borrelia Turicatae	Found in Europe.
Borrelia Valaisiana	Medically recognized as causing Lyme's disease.
Borrelia Venezuelensis	Causes relapsing fever in central and south America.
Borrelia Vincentii	Exists normally in the human mouth in low concentrations and safe proportions. Causes severe ulcerating gingivitis (trench mouth); typically found in those with poor oral hygiene but can also occur as a result of stress, cigarette smoking and poor nutrition; also can be found in those with serious illnesses.



## MIXED PARASITE 1 VIAL

From Parasite 1 Kit (product code 8038) and Fungus 1 Kit (product code 8027)

Latin name	type	symptoms	comments
Ancylostoma Caninum	hookworm	damage to intestinal walls, anemia, itchy skin, dizziness, pneumonitis, anorexia	tropical parasite; usual host is dogs
Ancylostoma, Egg	hookworm		tropical parasite; picked up from working barefoot among faeces or eating contaminated food
Ancylostoma, Female	hookworm		tropical parasite; picked up from working barefoot among faeces or eating contaminated food
Ascaris, Female	human roundworm commonly found in cats and dogs	sometimes asymptomatic; urticaria; mild to acute colicky pain with dis tension; reduced appetite; larvae in lungs can provoke pneumonia	the most common worm infection worldwide, particularly in developing countries
Ascaris, Male	human roundworm commonly found in cats and dogs	sometimes asymptomatic; urticaria; mild to acute colicky pain with dis tension; reduced appetite; larvae in lungs can provoke pneumonia	the most common worm infection worldwide, particularly in developing countries
Cimex	bed bug	itchy, painful bites which can lead to bacterial infection	lives in plaster, walls, furniture, bed frames
Clonorchis Sinensis	human oriental liver fluke	chronic liver disease; death if left untreated	widespread in China, Japan, Korea, Taiwan and Vietnam; via domestic dogs and cats
Culex Adult, Female	gnat/ mosquito		
Dipylidium Scolex Mature & gravid proglottides	tapeworm		grows in segments; the end can be uterus packed with eggs
Echinococcus Granulosus	tapeworm	affects liver, lungs, brain and bones	from sheep and cattle
Enterobius Vermicularis	pinworm	often cause itching of the anus; may provoke appendicitis	the most common worm infection in UK; lives in upper part of large intestine; children particularly affected
Fasciola	liver fluke		
Fasciola, Cercaria	liver fluke		mainly lives in liver of sheep
Fasciola, Egg	liver fluke		mainly in liver of sheep
Fasciola, Redia	liver fluke		

Latin name	type	symptoms	comments
Necator Americanus, Eggs	hookworm	Symptoms can include coughing and wheezing, but may be asymptomatic	common infection in the Americas, soil-Saharan Africa, South Asia and the Pacific
Onchocerca Volvulus	filarial worm	Asymptomatic until worm dies when causes inflammation and itching	predominantly Africa, but also South America and Yemen
Paragonimus Westermani, Eggs	lung fluke	coughing, chest pains, fever, night sweats	most important lung fluke affecting humans, widespread in the Far East and SE Asia
Pediculus Humanus Capitis	head lice	itching	can spread other diseases such as typhus and trench fever
Schistosoma Mansoni, Adult Female	blood fluke		common tropical fluke, responsible for bilharzia, found in Africa, parts of S. America, the Caribbean and Arabia
Schistosoma Mansoni, Cercariae	blood fluke		common tropical fluke, responsible for bilharzia, found in Africa, parts of S. America, the Caribbean and Arabia
Schistosoma Mansoni, Egg	blood fluke		common tropical fluke, responsible for bilharzia, found in Africa, parts of S. America, the Caribbean and Arabia
Schistosoma Mansoni, Miracidia	blood fluke		common tropical fluke, responsible for bilharzia, found in Africa, parts of S. America, the Caribbean and Arabia
Taenia, Scolex	tapeworm	hunger, weakness, weight loss	from eating uncooked meat; common in tropical countries
Taenia Scolex, immature, mature & gravid proglottids	tapeworm	hunger, weakness, weight loss	from eating uncooked meat; common in tropical countries
Trichinella Spiralis, Encysted Larvae	intestinal nematode	abdominal pain and diarrhea followed by muscle and joint pain and fever	found in Europe, soil-Saharan Africa and the Arctic, main sources are undercooked pork and wild meat
Trichinella Spiralis, Female	intestinal nematode	abdominal pain and diarrhea followed by muscle and joint pain and fever	found in Europe, soil-Saharan Africa and the Arctic, main sources are undercooked pork and wild meat
Trichinella Spiralis, Male	intestinal nematode	abdominal pain and diarrhea followed by muscle and joint pain and fever	found in Europe, soil-Saharan Africa and the Arctic, main sources are undercooked pork and wild meat
Trichuris Trichiura	whipworm	asymptomatic but can cause dysentery-like	worldwide distribution
Trichuris Trichiura, Egg	whipworm	asymptomatic but can cause dysentery-like	worldwide distribution
Xenopsylla Cheopsis	rat flea		transmits plague, typhus and two tape worms

References:

- B. K. Mandal et al      *Infectious Diseases*  
G.O. Cowan & B.J. Heap      *Clinical Tropical Medicine*  
D J Weatherall et al      *Oxford Textbook of Medicine Volume 1*  
BMA      *Complete Family Health Encyclopaedia*  
P. Cox & P. Brusseau      *Secret Ingredients*

## MIXED INTERNAL PARASITE 2 VIAL

### Found in Parsite 2 Kit (product code 8029)

Latin Name	Common Names	Symptoms	Comments
Ancylostoma Braziliense	human hookworm	severe skin itching	
Ancylostoma Duodenale, Male	human hookworm	itching, gastro-intestinal bleeding, iron deficiency	common in north Africa, northern India, northern parts of the Far East and the Andean region of South America
Ascaris Lumbricoides, Eggs	human roundworm	sometimes asymptomatic; urticaria; mild to acute colicky pain with distension; reduced appetite; larvae in lungs can provoke pneumonia.	commonly found in cats and dogs
Blastocystis Hominis		watery or loose stools, diarrhea, abdominal pain, anal itching, weight loss, and excess gas	common microscopic parasitic organism found throughout the world
Chilomastix Mesnili, Cysts		an amoeba found in intestine	viewed as harmless by the medical profession
Chilomastix Mesnili, Trophozoites		an amoeba found in intestine	viewed as harmless by the medical profession
Clonorchis Sinensis, Eggs	human oriental liver flake	chronic liver disease; death if left untreated	widespread in China, Japan, Korea, Taiwan and Vietnam; via domestic dogs and cats
Dientamoeba Fragilis		found in large intestine; abdominal pain, gas and mild diarrhea	
Diphyllobothrium Latum, Eggs	broadfish tapeworm	found in small intestine from eating raw or undercooked fish	prevalent in Scandinavia and around American Great Lakes
Dirofilaria Immitis	dog heartworm		in dogs & cats, rarely in humans
Endolimax Nana, Cyst		an amoeba found in intestine	Originally thought to be non- pathogenic, studies suggest it can cause intermittent or chronic diarrhea.
Entamoeba Coli Cysts			
Entamoeba Histolytica, Cyst		liver abscess, fever, abdominal pain	
Enterobius Vermicularis, Eggs	threadworm	often cause itching of the anus; may provoke appendicitis; lives in upper part of large intestine	the most common worm infection in UK; children particularly affected
Fasciolopsis Buski, Eggs		chronic infections may lead to inflammation, ulceration, hemorrhage, and abscesses of the small intestine	found in S E Asia
Giardia Lamblia, Cysts		Acute diarrhea, generalized weakness, abdominal distension, nausea. Chronically can cause malabsorption	also infects cattle, cats and dogs; most commonly reported protozoa worldwide

Latin Name	Common Names	Symptoms	Comments
Hymenolepis Nana / Vampirolepis Nana, Eggs	dwarf tapeworm	often no symptoms; headaches, dizziness, anorexia, abdominal pain, diarrhea	a particular problem in humans in areas of high population density and close contact, and where sanitary conditions are poor; most common tapeworm worldwide
Iodamoeba Butschlii Cysts			commensal in large intestine
Iodamoeba Butschlii Trophozoites			commensal in large intestine
Isospora, Oocysts		infection causes acute, non-bloody diarrhea with cramping abdominal pain, which can last for weeks and result in malabsorption and weight loss	
Leishmania Tropica		tropical sore, with infection usually localised to the site where the sandfly bite occurs	found in Ethiopia, India, European Mediterranean region, Middle East, Kenya, North Africa; some troops deployed in the Gulf have exhibited unusual symptoms (including fever, nausea, and fatigue)
Necator Americanus, Adult	new world hookworm	symptoms can include coughing and wheezing, but may be asymptomatic	common infection in the Americas, soil-Saharan Africa, South Asia and the Pacific
Necator Americanus, Infective Larvae	new world hookworm	symptoms can include coughing and wheezing, but may be asymptomatic	common infection in the Americas, soil-Saharan Africa, South Asia and the Pacific
Paragonimus Westermanii, Adult	oriental lung fluke	coughing, chest pains, fever, night sweats	most important lung fluke affecting humans, widespread in the Far East and SE Asia
Paragonimus Westermanii, Cercaria	oriental lung fluke	coughing, chest pains, fever, night sweats	most important lung fluke affecting humans, widespread in the Far East and SE Asia
Paragonimus Westermanii, Metacercaria	oriental lung fluke	coughing, chest pains, fever, night sweats	most important lung fluke affecting humans, widespread in the Far East and SE Asia
Paragonimus Westermanii, Redia	oriental lung fluke	coughing, chest pains, fever, night sweats	most important lung fluke affecting humans, widespread in the Far East and SE Asia
Schistosoma Haematobium, Eggs	blood fluke	urinary tract infection, bilharzia	found in Africa and Middle East
Schistosoma Haematobium, Female	blood fluke	urinary tract infection, bilharzia	found in Africa and Middle East
Schistosoma Japonicum, Eggs	blood fluke	fever, bloody diarrhea, bilharzia	found in Far East, but eradicated in Japan; cerebral granulomatous disease may be caused by ectopic S.
Schistosoma Japonicum, Male	blood fluke	fever, bloody diarrhea, bilharzia	found in Far East, but eradicated in Japan
Schistosoma Mansoni, Male	blood fluke	bilharzia	found in Africa, parts of S. America, the Caribbean and Arabia
Strongyloides Parasitic, Female		Often asymptomatic, but heavy infestation leads to bloody diarrhea, anemia and abdominal pain.	tropical and soil tropical countries, particularly South East Asia, Brazil and Columbia

<b>Latin Name</b>	<b>Common Names</b>	<b>Symptoms</b>	<b>Comments</b>
Strongyloides, Larvae		Often asymptomatic, but heavy infestation leads to bloody diarrhea, anemia and abdominal pain.	tropical and soil tropical countries, particularly South East Asia, Brazil and Columbia
Toxocara, Eggs	cat and dog roundworm	permanent partial loss of vision; heavier, or repeated can lead to fever, coughing, asthma, or pneumonia	spread from dogs and cats
Trypanosoma Cruzi, Trypomastigote	Chagas disease, American trypanosomiasis	dementia and damage to heart muscle	found throughout much of central and northern South America, Central America, and Mexico

## MIXED EXTERNAL PARASITE 2 VIAL

Found in Parsite 2 Kit (product code 8029)

Latin Name	Common Names	Symptoms	Comments
Amblyomma Americanum	lone star tick		a major carrier of Rocky Mountain spotted fever and Lyme disease
Ctenocephalides Felis, Adult	cat flea		
Dermacentor Andersoni, Nymph			tick which carries Rocky Mountain fever
Dermacentor Variabilis, Male	American dog tick		transmits spotted fever; carries Lyme disease bacteria, but unclear if can transmit it to humans
Pulex Irritans, Adult	human flea		common flea
Sarcoptes Scabiei	itch mite, mange mite	scabies	

## MIXED PARASITE 3 VIAL

### Found in Parasite 3 Kit (product code 8115)

Name	Comments
Ancylostoma Duodenale / Old World Hookworm, Eggs	Lives in the small intestine of hosts such as humans, cats and dogs; abundant throughout the world, including in the following areas: southern Europe, north Africa, India, China, southeast Asia, some areas in the United States, the Caribbean, and South America.
Brugia Malayi / Brugian Filariasis, Microfilaria	A nematode (roundworm), one of the three causative agents of lymphatic filariasis (elephantiasis) in humans; restricted to South and South East Asia.
Capillaria Hepatica / Hepaticola Hepatica / Calodium Hepaticum, Eggs	Causes hepatic capillariasis; found in rats, a wide variety of other wild and domestic mammals, and occasionally humans; has been found in temperate and tropical zones on every continent.
Dicrocoelium Dendriticum / Sheep Liver Fluke	Usually infects the bile duct; in heavier infections, bile ducts and the biliary epithelium may become enlarged in addition to the generation of fibrous tissue surrounding the ducts, and as a result, causing an enlarged liver (hepatomegaly) or inflammation of the liver (cirrhosis); worldwide distribution particularly in grazing land near forest areas (good for molluscs) and dry pastures with little other biodiversity (good for the ants) both increased parasite prevalence (molluscs and ants are hosts). Humans can become hosts after accidentally ingesting infected ants.
Diphyllobothrium Latum, Immature Proglottid	Tapeworm causing Diphylobothriasis in humans through consumption of raw or undercooked fish; native to Scandinavia, western Russia, and the Baltics, though it is now also present in North America, especially the Pacific Northwest.
Diphyllobothrium Latum, Mature Proglottid	Tapeworm causing Diphylobothriasis in humans through consumption of raw or undercooked fish; native to Scandinavia, western Russia, and the Baltics, though it is now also present in North America, especially the Pacific Northwest.
Dipylidium Caninum, Eggs	Infects organisms afflicted with fleas and canine chewing lice, including dogs, cats, and sometimes human pet-owners, especially children; most infections are asymptomatic, but sometimes mild diarrhea, abdominal colic, anorexia, restlessness, constipation, rectal itching and pain due to emerging proglottids through the anal cavity.
Dipylidium Caninum, Immature Proglottid	Infects organisms afflicted with fleas and canine chewing lice, including dogs, cats, and sometimes human pet-owners, especially children; most infections are asymptomatic, but sometimes mild diarrhea, abdominal colic, anorexia, restlessness, constipation, rectal itching and pain due to emerging proglottids through the anal cavity.
Dipylidium Caninum, Mature Proglottid	Infects organisms afflicted with fleas and canine chewing lice, including dogs, cats, and sometimes human pet-owners, especially children; most infections are asymptomatic, but sometimes mild diarrhea, abdominal colic, anorexia, restlessness, constipation, rectal itching and pain due to emerging proglottids through the anal cavity.
Dirofilaria Immitis, Microfilariae	A parasitic roundworm that is spread from host to host through the bites of mosquitoes; definitive host is the dog, but it can also infect cats, wolves, coyotes, foxes and other animals and under very rare circumstances, humans. (Microfilariae are live young that circulate in the bloodstream for as long as two years, waiting for the next stage in their life cycles in the gut of a bloodsucking mosquito.)
Echinococcus Granulosus / Hydatid Worm / Hyper Tapeworm / Dog Tapeworm, Cyst	First document in Alaska but is distributed world-wide; especially prevalent in parts of Eurasia, north and east Africa, Australia, and South America. Most prevalent in sheep farming communities.



Name	Comments
Fasciola Hepatica / Common Liver Fluke, Eggs	Infects the livers of various mammals, including humans; human infections occur in parts of Europe, northern Iran, northern Africa, Cuba, South America, especially the Altiplano regions of the Peruvian and Bolivian Andes; also an emerging problem in Vietnam and Cambodia.
Hymenolepis Nana / Vampirolepis Nana / Dwarf Tapeworm	One of the most common intestinal worms infecting humans, especially children; common in temperate zones. Most people who are infected do not have any symptoms. Those who have symptoms may experience nausea, weakness, loss of appetite, diarrhea, and abdominal pain. Young children, especially those with a heavy infection, may develop a headache, itchy bottom, or have difficulty sleeping. Sometimes infection is misdiagnosed as a pinworm infection.
Loa Loa / Eye Worm	Found in Africa and India; travels from the entry site through subcutaneous tissues, causing inflammation in the skin wherever they travel.
Macracanthorhynchus Hirudinaceus, Eggs	Lives in the intestines of pigs, and very occasionally in humans or dogs. It causes enteritis, gastritis or peritonitis.
Mansonella	Found in Africa and tropical Americas, spread by biting midges or blackflies; usually asymptomatic.
Schistosoma Japonicum, Cercaria	Found in China, but now eradicated in Japan; often asymptomatic, but may experience fever, cough, abdominal pain, diarrhea, hepatosplenomegaly, and eosinophilia. Occasionally central nervous system lesions occur: cerebral granulomatous disease may be caused by ectopic S. japonicum eggs in the brain.
Schistosoma Japonicum, Female	Found in China, but now eradicated in Japan; often asymptomatic, but may experience fever, cough, abdominal pain, diarrhea, hepatosplenomegaly, and eosinophilia.
Schistosoma Japonicum, Miracidium	Found in China, but now eradicated in Japan; often asymptomatic, but may experience fever, cough, abdominal pain, diarrhea, hepatosplenomegaly, and eosinophilia.
Schistosoma Japonicum, Sporocyst	Found in China, but now eradicated in Japan; often asymptomatic, but may experience fever, cough, abdominal pain, diarrhea, hepatosplenomegaly, and eosinophilia.
Schistosoma Mansoni, Adult Male	Causes intestinal schistosomiasis; present in many countries, predominantly in South America and the Caribbean, Africa including Madagascar, and the Middle East.
Spirometra Mansoni, Egg	Occurs worldwide in distribution, although most human cases of sparganosis are recorded from southeast Asian countries. Sparganosis is endemic in animals throughout North America, although human cases from this area are rare.
Spirometra Mansoni, Immature Proglottid	Occurs worldwide in distribution, although most human cases of sparganosis are recorded from southeast Asian countries. Sparganosis is endemic in animals throughout North America, although human cases from this area are rare.
Spirometra Mansoni, Mature Proglottid	Occurs worldwide in distribution, although most human cases of sparganosis are recorded from southeast Asian countries. Sparganosis is endemic in animals throughout North America, although human cases from this area are rare.
Taenia Saginata / Beef Tapeworm, Immature Proglottid	Cattle are the intermediate hosts, where larval development occurs, while humans are definitive hosts harbouring the adult worms; found globally and most prevalently where cattle are raised and beef is consumed. It is relatively common in Africa, some parts of Eastern Europe, Southeast Asia, South Asia, and Latin America.
Taenia Solium / Pork Tapeworm, Eggs	Found throughout the world, and is most prevalent in countries where pork is eaten; usually asymptomatic, but in severe cases leads to intestinal irritation, anemia, and indigestion.
Toxocara Canis / Dog Roundworm	Humans can be infected just by stroking an infected dog's fur and accidentally ingesting infective eggs that may be present on the dog's fur; results in hepatomegaly, myocarditis, respiratory failure and vision problems.
Tunga Penetrans / Chigoe Flea / Jigger	Native to Central and South America, but now also found sub-Saharan Africa; breeding females burrow into exposed skin on the feet and remain there for two weeks while developing eggs, during which time they swell dramatically, sometimes causing intense irritation; if the flea is left within the skin, dangerous complications can occur including secondary infections, loss of nails, and toe deformation.

## MIXED WORMS VIAL

**From Parasite 1 -3 Kits (Product codes 8038, 8039 and 8115)**

Name	Comments
Ancylostoma Braziliense	severe skin itching
Ancylostoma Duodenale / Old World Hookworm, Eggs	Lives in the small intestine of hosts such as humans, cats and dogs; abundant throughout the world, including in the following areas: southern Europe, north Africa, India, China, southeast Asia, some areas in the United States, the Caribbean, and South America.
Ancylostoma Duodenale, Male	itching, gastro-intestinal bleeding, iron deficiency.
Ancylostoma, Egg	tropical parasite; picked up from working barefoot among faeces or eating contaminated food
Ancylostoma, Female	tropical parasite; picked up from working barefoot among faeces or eating contaminated food
AncylostomaCaninum	damage to intestinal walls, anemia, itchy skin, dizziness, pneumonitis, anorexia. Tropical parasite, usual host dogs.
Ascaris Lumbricoides, Eggs	sometimes asymptomatic; urticaria; mild to acute colicky pain with distension; reduced appetite; larvae in lungs can provoke pneumonia. Commonly found in cats and dogs
Ascaris, Female	sometimes asymptomatic; urticaria; mild to acute colicky pain with distension; reduced appetite; larvae in lungs can provoke pneumonia. the most common worm infection worldwide, particularly in developing countries
Ascaris, Male	sometimes asymptomatic; urticaria; mild to acute colicky pain with distension; reduced appetite; larvae in lungs can provoke pneumonia. the most common worm infection worldwide, particularly in developing countries
Brugia Malayi / Brugian Filariasis, Microfilaria	A nematode (roundworm), one of the three causative agents of lymphatic filariasis (elephantiasis) in humans; restricted to South and South East Asia.
Diphyllobothrium Latum, Eggs	found in small intestine from eating raw or undercooked fish. Prevalent in Scandinavia and around American Great Lakes
Diphyllobothrium Latum, Immature Proglottid	Tapeworm causing Diphyllobothriasis in humans through consumption of raw or undercooked fish; native to Scandinavia, western Russia, and the Baltics, though it is now also present in North America, especially the Pacific Northwest.
Diphyllobothrium Latum, Mature Proglottid	Tapeworm causing Diphyllobothriasis in humans through consumption of raw or undercooked fish; native to Scandinavia, western Russia, and the Baltics, though it is now also present in North America, especially the Pacific Northwest.
Dipylidium Scolex Mature & gravid proglottides	grows in segments; the end can be uterus packed with eggs
Dirofilaria Immitis	in dogs & cats, rarely in humans
Dirofilaria Immitis, Microfilariae	A parasitic roundworm that is spread from host to host through the bites of mosquitoes; definitive host is the dog, but it can also infect cats, wolves, coyotes, foxes and other animals and under very rare circumstances, humans. (Microfilariae are live young that circulate in the bloodstream for as long as two years, waiting for the next stage in their life cycles in the gut of a bloodsucking mosquito.)
Echinococcus Granulosus	affects liver, lungs, brain and bones. from sheep and cattle

Echinococcus Granulosus / Hydatid Worm / Hyper Tapeworm / Dog Tapeworm, Cyst	First document in Alaska but is distributed world-wide; especially prevalent in parts of Eurasia, north and east Africa, Australia, and South America. Most prevalent in sheep farming communities.
Enterobius Vermicularis	often cause itching of the anus; may provoke appendicitis, children particularly affected; the most common worm infection in UK; lives in upper part of large intestine
Enterobius Vermicularis, Eggs	often cause itching of the anus; may provoke appendicitis; lives in upper part of large intestine. The most common worm infection in UK; children particularly affected.
Hymenolepis Nana / Vampirolepis Nana / Dwarf Tapeworm	One of the most common intestinal worms infecting humans, especially children; common in temperate zones. Most people who are infected do not have any symptoms. Those who have symptoms may experience nausea, weakness, loss of appetite, diarrhea, and abdominal pain. Young children, especially those with a heavy infection, may develop a headache, itchy bottom, or have difficulty sleeping. Sometimes infection is misdiagnosed as a pinworm infection.
Hymenolepis Nana / Vampirolepis Nana, Eggs	often no symptoms; headaches, dizziness, anorexia, abdominal pain, diarrhea. a particular problem in humans in areas of high population density and close contact, and where sanitary conditions are poor; most common tapeworm worldwide
Loa Loa / Eye Worm	Found in Africa and India; travels from the entry site through subcutaneous tissues, causing inflammation in the skin wherever they travel.
Necator Americanus, Adult	symptoms can include coughing and wheezing, but may be asymptomatic. Common infection in the Americas, soil-Saharan Africa, South Asia and the Pacific
Necator Americanus, Eggs	Symptoms can include coughing and wheezing, but may be asymptomatic. common infection in the Americas, soil-Saharan Africa, South Asia and the Pacific
Necator Americanus, Infective Larvae	symptoms can include coughing and wheezing, but may be asymptomatic. Common infection in the Americas, soil-Saharan Africa, South Asia and the Pacific
Onchocerca Volvulus	Asymptomatic until worm dies when causes inflammation and itching. predominantly Africa, but also South America and Yemen
Taenia Saginata / Beef Tapeworm, Immature Proglottid	Cattle are the intermediate hosts, where larval development occurs, while humans are definitive hosts harbouring the adult worms; found globally and most prevalently where cattle are raised and beef is consumed. It is relatively common in Africa, some parts of Eastern Europe, Southeast Asia, South Asia, and Latin America.
Taenia Scolex, immature, mature & gravid proglottids	hunger, weakness, weight loss. from eating uncooked meat; common in tropical
Taenia Solium / Pork Tapeworm, Egg	Found throughout the world, and is most prevalent in countries where pork is eaten; usually asymptomatic, but in severe cases leads to intestinal irritation, anemia, and indigestion.
Taenia, Scolex	hunger, weakness, weight loss. from eating uncooked meat; common in tropical
Toxocara Canis / Dog Roundworm	Humans can be infected just by stroking an infected dog's fur and accidentally ingesting infective eggs that may be present on the dog's fur; results in hepatomegaly, myocarditis, respiratory failure and vision problems.
Toxocara, Eggs	permanent partial loss of vision; heavier, or repeated can lead to fever, coughing, asthma, or pneumonia. spread from dogs and cats
Trichuris Trichiura	asymptomatic but can cause dysentery-like illness; worldwide distribution
Trichuris Trichiura, Egg	asymptomatic but can cause dysentery-like illness. worldwide distribution

## MIXED PROTOZOA VIAL

### From Protozoa Kit (product code 8110) and some from Parasite 1 Kit (8038)

A large number of the vials are unique to this kit, but the kit contains some protozoa that are also in the Fungus 1 Test Kit and Parasite 2 Test Kit. In addition the three most medically significant protozoa from the Lyme Plus test kit are included here.

Protozoa are the simplest, most primitive type of animal, consisting of a single cell. They are resistant to antibiotics.

Some protozoa have life stages alternating between active stages (e.g., trophozoites) and dormant **cysts**. As cysts, protozoa can survive harsh conditions, such as exposure to extreme temperatures or harmful chemicals, or long periods without access to nutrients, water, or oxygen for a period of time. Being a cyst enables parasitic species to survive outside of a host, and allows their transmission from one host to another. When protozoa are in the form of trophozoites (Greek, tropho = to nourish), they actively feed. The conversion of a trophozoite to cyst form is known as encystation, while the process of transforming back into a trophozoite is known as excystation. Protozoa can reproduce by binary fission or multiple fission. Some protozoa reproduce sexually, some asexually, while some use a combination, (e.g., Coccidia). An individual protozoan is hermaphroditic.

**Amastigote** does not have visible external flagella or cilia. The term is used mainly to describe a certain phase in the life-cycle of trypanosome protozoans. It is also called the leishmanial stage, since in Leishmania it is the form the parasite takes in the vertebrate host, but occurs in all trypanosome genera.

**Promastigote** – this is a stage in the insect host. Promastigotes enter the blood when a person is bitten by the insect. They quickly enter the amastigote stage (see above). Ideally we would have referred to include the amastigote stage rather than the promastigote stage for some vials, but we have included the promastigote stage if the amastigote stage was not available at this time.

A **trophozoite** (G. trophē, nourishment + zōon, animal) is the activated, intracellular feeding stage in the life cycle.

This online blog article has a lot of interesting information about Toxoplasma gondii:

<http://blogs.scientificamerican.com/science-sushi/2012/07/04/toxoplasmas-dark-side-the-link-between-parasite-and-suicide/>

Name	Comments
Acanthamoeba Sp.	Inhabit a variety of air, soil, and water environments; cause granulomatous amoebic encephalitis and amoebic keratitis and have been associated with cutaneous lesions and sinusitis.
Babesia Bigemina	North and South America, Southern Europe, Africa, Asia and Australia. Causes Babesiosis /Piroplasmosis, also known as Texas cattle fever, redwater fever, tick fever, and Nantucket fever. Gives malaria-like symptoms. As a result, malaria is a common misdiagnosis for the disease. But for 25% of cases in adults and half of cases in children, the disease is asymptomatic or mild with flu-like symptoms.
Babesia Divergens	Has been found in Turkey, Spain, Canary Islands, Tunisia, Austria, France and Norway. Causes Babesiosis /Piroplasmosis; infections have a much higher fatality rate (42%) than with other strains and present with the most severe symptoms: haemoglobinuria followed by jaundice, a persistently high fever, chills and sweats. If left untreated, can develop into shock-like symptoms with pulmonary edema and renal failure.
Babesia Microti / Theileria Microti	Common in US; causes Babesiosis /Piroplasmosis; also known as Texas cattle fever, redwater fever, tick fever, and Nantucket fever. For 25% of cases in adults and half of cases in children, the disease is asymptomatic or mild with flu-like symptoms. Symptoms are characterized by irregular fevers, chills, headaches, general lethargy, pain and malaise.
Balantidium Coli	Asymptomatic, diarrhea

Name	Comments
Balantidium Coli, Cysts	Common in the Philippines, but it can be found anywhere in the world, especially among those that are in close contact with pigs - main source of infection usually through water contaminated with their faeces; causes the disease Balantidiasis (diarrhea, constipation); perforation of the colon may also occur in acute infections which can lead to life-threatening situations;
Balantidium Coli, Trophozoites	Common in the Philippines, but it can be found anywhere in the world, especially among those that are in close contact with pigs - main source of infection usually through water contaminated with their faeces; causes the disease Balantidiasis (diarrhea, constipation); perforation of the colon may also occur in acute infections which can lead to life-threatening situations;
Chilomastix Mesnili, Cysts	Found more frequently in warm climates; medically considered to be non-pathogenic.
Chilomastix Mesnili, Trophozoites	Found more frequently in warm climates; medically considered to be non-pathogenic.
Cryptosporidium	Diarrhea, (usually watery), abdominal cramping, nausea, vomiting, fever, headache, loss of appetite. Serological surveys indicate that 80% of the US population has had cryptosporidiosis
Cryptosporidium Parvum, Cyst	Causes cryptosporidiosis (primary symptoms are acute, watery, and non-bloody diarrhea); other symptoms may include anorexia, nausea/vomiting and abdominal pain. Extra-intestinal sites include the lung, liver and gall bladder where it causes respiratory cryptosporidiosis, hepatitis and cholecystitis.
Dientamoeba Fragilis, Trophozoites	Causes gastrointestinal upset in some people, but not in others; an important cause of travellers' diarrhea, chronic diarrhea, fatigue and failure to thrive in children. No cyst stage.
Endolimax Nana, Cysts	Originally thought to be non-pathogenic, but studies now suggest it can cause intermittent or chronic diarrhea.
Endolimax Nana, Trophozoites	Originally thought to be non-pathogenic, but studies now suggest it can cause intermittent or chronic diarrhea.
Entamoeba Coli, Cysts	Commonly found in the lower intestine; can cause liver abscesses, fever, abdominal pain, food poisoning.
Entamoeba Coli, Trophozoites	Commonly found in the lower intestine; can cause liver abscesses, fever, abdominal pain, food poisoning.
Entamoeba Gingivalis	Found near the base of the teeth, and in periodontal pockets in 95% of people with gum disease; rarely found in people with healthy gums; transmission is direct from one person to another by kissing, or by sharing eating utensils. (No known cyst stage).
Entamoeba Hartmanni, Cysts and Trophozoites	Commonly found in the intestinal tract but considered non-pathogenic.
Entamoeba Histolytica	liver abscess, fever, abdominal pain
Entamoeba Histolytica, Cysts	Infection can be asymptomatic; symptoms include amoebic dysentery, bloody diarrhea, weight loss, fatigue, abdominal pain, amoeboma and amoebic liver abscess. Most common in countries with poor sanitation.
Entamoeba Histolytica, Trophozoites	Infection can be asymptomatic; symptoms include amoebic dysentery, bloody diarrhea, weight loss, fatigue, abdominal pain, amoeboma and amoebic liver abscess. Most common in countries with poor sanitation.

Name	Comments
Enterocytozoon Bieneusi	Found in a wide variety of hosts including pigs, humans, and other mammals; an important and rapidly emerging opportunistic disease, occurring mainly, but not exclusively, in severely immunocompromised patients with AIDS, resulting in diarrhea and acalculous cholecystitis (the main opening to the gallbladder gets blocked).
Giardia Lamblia	Acute diarrhea, generalized weakness, abdominal distension, nausea. Chronically can cause malabsorption. Also infects cattle, cats and dogs; most commonly reported protozoa worldwide
Giardia Lamblia, Cysts	The most common pathogenic parasitic infection in humans worldwide; one of the most common parasites infecting cats, dogs and birds. Infection can occur through contaminated food, or by the faecal-oral route through poor hygiene practices; symptoms include weakness in the body, loss of appetite, diarrhea, loose or watery stools, stomach cramps, upset stomach, projectile vomiting, bloating, excessive gas, and burping but may be asymptomatic.
Giardia Lamblia, Trophozoites	The most common pathogenic parasitic infection in humans worldwide; one of the most common parasites infecting cats, dogs and birds. Infection can occur through contaminated food, or by the faecal-oral route through poor hygiene practices; symptoms include weakness in the body, loss of appetite, diarrhea, loose or watery stools, stomach cramps, upset stomach, projectile vomiting, bloating, excessive gas, and burping but may be asymptomatic.
Iodamoeba Butschlii, Cysts	Found worldwide; often present in large intestine; medically believed to be nonpathogenic.
Iodamoeba Butschlii, Trophozoites	Found worldwide; often present in large intestine; medically believed to be nonpathogenic.
Leishmania Donovanii	Leishmaniasis (ulcerating skin lesions). In South America, particularly Brazil, and in the old world is found in Mediterranean Europe, North Africa, East Africa, India and China
Leishmania Amazonensis	Found in the Americas; causes Leishmaniasis/ Leishmaniosis (ulcers of the skin, mouth, and nose).
Leishmania Donovanii, Amastigotes	Prevalent throughout tropical and temperate regions including Africa (mostly in Sudan), China, India, Nepal, southern Europe, Russia and South America; causes Leishmaniasis/ Leishmaniosis (ulcers of the skin, mouth, and nose).
Leishmania Major	Found only in Northern Africa, the Middle East, Northwestern China, and Northwestern India; causes Leishmaniasis/ Leishmaniosis (ulcers of the skin, mouth, and nose).
Leishmania Tropica	Found in Ethiopia, India, European Mediterranean region, Middle East, Kenya and North Africa; causes Leishmaniasis/ Leishmaniosis (ulcers of the skin, mouth, and nose).
Plasmodium Falciparum	Much more prevalent in sub-Saharan Africa than in many other regions of the world; causes the most dangerous form of malaria.
Plasmodium Falciparum	Malaria. Africa and New Guinea, South East Asia, South America and Oceania
Plasmodium Malariae	Widespread throughout sub-Saharan Africa, much of southeast Asia, Indonesia, on many of the islands of the western Pacific and in areas of the Amazon Basin of South America; causes the least dangerous form of malaria - benign/recurring malaria.
Plasmodium Ovale	Relatively rare compared with other Plasmodium; limited to West Africa, the Philippines, eastern Indonesia, Papua New Guinea, Bangladesh, India, Cambodia, Thailand and Vietnam; causes benign/recurring malaria.

Name	Comments
Plasmodium Vivax	Found mainly in Asia and South America; the most frequent and widely distributed cause of benign /recurring malaria.
Plasmodium Vivax	Malaria. India, Pakistan, Bangladesh, Sri Lanka, SE Asia, Central and South America.
Protozoa Various	
Toxoplasma Gondii, Cyst	One of the most common human parasites; often from eating undercooked pork; also soil, water and food contaminated with faeces from infected animals (particularly cats); may be sexually transmitted in humans, although not yet proven; up to a third of the global population has been exposed to and may be chronically infected with it, although infection rates differ significantly from country to country; causes toxoplasmosis; acute toxoplasmosis is often asymptomatic in healthy adults, but symptoms may occur and are often influenza-like (swollen lymph nodes, or muscle aches and pains that last for a month or more); may also cause subtle behavioral or personality changes; infection with the parasite associated with attention deficit hyperactivity disorder, obsessive compulsive disorder, schizophrenia and also suicides.
Toxoplasma Gondii, Trophozoites	One of the most common human parasites; often from eating undercooked pork; also soil, water and food contaminated with faeces from infected animals (particularly cats); may be sexually transmitted in humans, although not yet proven; up to a third of the global population has been exposed to and may be chronically infected with it, although infection rates differ significantly from country to country; causes toxoplasmosis; acute toxoplasmosis is often asymptomatic in healthy adults, but symptoms may occur and are often influenza-like (swollen lymph nodes, or muscle aches and pains that last for a month or more); may also cause subtle behavioral or personality changes; infection with the parasite associated with attention deficit hyperactivity disorder, obsessive compulsive disorder, schizophrenia and also suicides.
Trichomonas Vaginalis	Vaginitis in woman; occasionally in men, affecting urethra, but usually asymptomatic. Usually sexually transmitted
Trichomonas Vaginalis, Trophozoite	Vaginitis in woman; occasionally in men, affecting urethra, but usually asymptomatic. Usually sexually transmitted.
Trypanosoma Brucei	African Trypanosomiasis, sleeping sickness. Found in Africa
Trypanosoma Brucei Gambiense	Causes Central African sleeping sickness
Trypanosoma Brucei Rhodesiense	Causes South African sleeping sickness
Trypanosoma Cruzi	Chagas disease in South America and sleeping sickness in Africa.

## MIXED RICKETTSIA VIAL

### From Fungus, Protozoa, Rickettsia & Chlamydia Kit (Fungus 1) Product Code 8027

A type of parasitic micro-organism. They resemble bacteria but are only able to replicate by invading the cells of another life form; rickettsiae are parasites of ticks, lice, etc., which can transmit the rickettsiae to humans via their bite or contaminated faeces.

Coxiella Burnetii	Q fever, acute and chronic hepatitis	transmitted by rickettsia
Rocky Mountain Spotted Fever		from rabbits and other small mammals by tick bites; North and South America



## MIXED CHLAMYDIA VIAL

### From Fungus Etc. 1 Kit (product code 8027)

Micro-organisms are bigger than viruses and smaller than bacteria; like viruses they can only multiply by first invading the cells of another life form; otherwise more like bacteria and are susceptible to antibiotics.

Name	Comments
Chlamydia Psittaci / Chlamydothila psittaci	Psittacosis, pneumonia, hepatitis, possibly linked to heart disease. Inhalation of dust from faeces of contaminated birds.
Chlamydia Trachomatis	Non-specific urethritis, fever, tonsillitis/ pharyngitis, otitis media, conjunctivitis, pneumonia, chronic salpingitis, possibly linked to heart disease.
Chlamydia Pneumoniae / Chlamydothila Pneumoniae	Pneumonia, bronchitis pharyngitis, laryngitis, and sinusitis. By age 20 years, 50% of population have evidence of past infection. Re-infection throughout life appears to be common. Studies have shown that people infected by this chlamydia are 4.5 times more likely to have a stroke than matched controls who show no sign of having encountered it. Links have also been proposed with Alzheimer's disease, asthma, and some forms of arthritis.

## MIXED VIRUS 1 VIAL

### From Virus 1 Kit (product code 8063)

The smallest known type of infective agent. Outside of living cells viruses are inert. They invade living cells, take them over and make copies of themselves. Not susceptible to antibiotics.

<b>Virus</b>	<b>Medically Recognized Possible Symptoms &amp; Effects</b>	<b>Comments</b>
Coxsackie	tonsillitis / pharyngitis, childhood pneumonia, upper respiratory tract infection, grayish ulcers of soft palate and fauces, Bornholm disease, fever, hand foot and mouth disease, flaccid paralysis, viral meningitis	24 group A and six group B
Cytomegalovirus (CMV)	tonsillitis / pharyngitis, encephalitis, hepatitis	
Epstein-Barr Virus (EBV)	infectious mononucleosis, tonsillitis / pharyngitis, glandular fever, encephalitis, hepatitis, implicated in nasopharyngeal carcinoma and lymphomas, viral meningitis	
Hepatitis A (HAV)	acute hepatitis	Particularly prevalent in developing countries. In developed nations 20% of young adults show serological evidence of past infection
Hepatitis B (HBV)	acute and chronic viral hepatitis, implicated in primary liver cancer	0.1% of UK population estimated to be carriers
Hepatitis C (HCV)	acute and chronic viral hepatitis, implicated in primary liver cancer	
Herpes Simplex Type 1 (HSV)	Tonsillitis/ pharyngitis, cold sores, whitlows (infections at tip of finger)), encephalitis, oral and genital ulcers (cold sores).	
Herpes Simplex Type 2 (HSV)	genital ulcers	
Herpes Zoster	Shingles	
Human Immunodeficiency Virus (HIV)	tonsillitis / pharyngitis, encephalitis	
Influenza	influenza	Singapore A, Sichnan A, Beijing A, Shangdong A, Panama B, Yamagata B strains in this vial
Measles Virus	fever and running nose, cough followed by rash, viral meningitis	
Mumps Virus	headache, sore throat and fever with enlarged salivary glands	
Papilloma Human Virus (HPV)	warts, implicated in cancer of the cervix	
Polio Virus	poliomyelitis	3 types. Type 1 most virulent
Respiratory Syncytial Virus (RSV)	croup, common cold, childhood pneumonia	

Virus	Medically Recognized Possible Symptoms & Effects	Comments
Rubella Virus (German Measles)	German measles, rash	
Smallpox Virus	smallpox, influenza-type illness, pus - filled blisters	it is believed that no reservoirs of this virus are now left outside of laboratories
Varicella Zoster	chickenpox	
Yellow Fever Virus	hepatitis	occurs in tropical areas of Africa and South America
Parvovirus	causes slapped cheek disease (fifth disease / erythema infectiosum); a distinctive red, lacy-like rash on cheeks (and sometimes other parts of body), headache, fever; occurs most often in children; 20% to 30% symptom-free even though infected; in adults can cause joint pains and swelling, miscarriages in the first 20 weeks of pregnancy; can cause chronic anemia in those with HIV or who have had organ transplants.	It is thought that 60% of all adults in the UK have been infected with Parvovirus at some point, usually as a child (NHS Direct).

## MIXED VIRUS 2 VIAL

All vials from Virus 2 Kit (product code 8092) except for Ross River Virus which is in the Mixed Virus 3 vial

Name	Comments
Adenovirus	Most commonly causes illness of the respiratory system, but may also cause gastroenteritis, conjunctivitis, cystitis, and rashes.
As trovirus	Causes diarrhea and viral gastroenteritis.
Avian Influenza Virus / H5N1	Infections have been documented among humans, sometimes causing severe illness and death.
Borna Virus	May play a role in some human neurological and psychiatric conditions including bipolar disorder and depression. Has been found in animals in Europe, Asia, Africa and North America.
Coronavirus	Primarily infects the upper respiratory and gastro-intestinal tract, causing the common cold.
Dengue Fever	An infectious tropical disease, but seen as a potential biological warfare agent. Symptoms include fever, headache, muscle and joint pains, and a characteristic skin rash that is similar to measles.
Ebola Virus (REBOV, ZEBOV, N and Sierra	Causes Ebola hemorrhagic fever. Mainly restricted to Africa but seen as a potential biological warfare agent.
Echovirus	The leading causes of acute febrile illness in infants and young children, and is the most common cause of aseptic meningitis.
Enterovirus	Has been associated with hand, foot, and mouth disease.
GB Virus C / GBV-C	Formerly known as hepatitis G virus (HGV). Known to infect humans, but is not known to cause human disease. Approximately 2% of healthy US blood donors have the virus in their blood stream, and up to 13% of blood donors have antibodies to E2 protein, indicating possible prior infection. Some studies have suggested that co-infection with GBV-C slows the progression of HIV disease.
Hepatitis D	Occurs only when Hepatitis B (HBV) is present, resulting in more severe complications compared to infection with HBV alone.
Hepatitis E	Prevalent in most developing countries, and common in any country with a hot climate.
Human T-Lymphotropic Virus Type 1 / HTLV-I/ Adult T Cell Lymphoma Virus Type 1	Has been seriously implicated in several kinds of diseases, including HTLV- I-associated myelopathy and Strongyloides stercoralis, and as a virus cancer link for leukemia.
Human T-Lymphotropic Virus Type 2	Associated with neurologic disorders and chronic pulmonary infections. Found predominantly in IV drug users, Native Americans, Caribbean and South American Indian groups.
Japanese Encephalitis Virus	Causes encephalitis. Transmitted by mosquitoes. Most prevalent in Southeast Asia and the Far East.
Norovirus / Norwalk Virus	Causes about half of all non-bacterial gastroenteritis cases around the world.
Parainfluenza Virus 1	Parainfluenza viruses are the second most common cause of lower respiratory tract infection in younger children, including croup. Also upper respiratory tract illness (a cold and sore throat).
Parainfluenza Virus 2	Parainfluenza viruses are the second most common cause of lower respiratory tract infection in younger children, including croup. Also upper respiratory tract illness (a cold and sore throat).
Parainfluenza Virus 3	Parainfluenza viruses are the second most common cause of lower respiratory tract infection in younger children, including croup. Also upper respiratory tract illness (a cold and sore throat).This strain also associated with bronchiolitis and pneumonia.

Parainfluenza Virus 4	Parainfluenza viruses are the second most common cause of lower respiratory tract infection in younger children, including croup. Also upper respiratory tract illness (a cold and sore throat).
Rhinovirus	Main cause of human common cold.
Ross River Virus	Causes an influenza-like illness and polyarthritis. The virus is endemic to Australia, Papua New Guinea, Fiji, Samoa, the Cook Islands, New Caledonia and several other islands in the South Pacific.
Rotavirus	The most common cause of severe diarrhea among infants and young children. Can occur throughout life: the first usually produces symptoms, but subsequent infections are typically mild or asymptomatic.
Severe Acute Respiratory Syndrome Virus (SARS)	A viral respiratory illness; no known outbreaks since 2004. Seen as a potential biological warfare agent.
Swine Flu Virus / Swine Influenza Virus / H1N1 Virus	Transmission of the virus from pigs to humans is not common and does not always lead to human flu.
West Nile Virus	Main route of human infection is through the bite of an infected mosquito. Approximately 90% of West Nile Virus infections in humans are without any symptoms. Found in Africa, Europe, the Middle East, west and central Asia, Oceania and North America.

## MIXED VIRUS 3 VIAL

**All vials from Virus 3 Kit (product code 8083) except** does not have Ross River virus but does have Covid-19 virus, MERS Virus (Middle East Respiratory Syndrome Coronavirus) and Molluscum Contagiosum (Pox Virus).

Name	Comments
BK Virus	Many people who are infected with this virus are asymptomatic. If symptoms do appear, they tend to be mild: respiratory infection or fever. Past infection with the BK virus is widespread, but significant consequences of infection are uncommon, with the exception of the immune-compromised and the immuno-suppressed.
California Encephalitis Virus	Causes encephalitis in humans. Characterized by fever, drowsiness, and lack of mental alertness and orientation. Seizures occur in 50% of children. Focal neurologic signs such as irregular and abnormal reflexes develop in 20% of children. 10% of patients develop coma. The total duration of illness rarely exceeds 10–14 days. Recurrent unprovoked seizures occur even after the illness has passed. This develops in 20% of patients, especially those who had seizures during the acute illness. In adults, infection is asymptomatic.
Colorado Tick Fever Virus /CTFV	Initial symptoms include fever, chills, headaches, pain behind the eyes, light sensitivity, muscle pain, generalized malaise, abdominal pain, nausea, and vomiting, as well as a flat or pimply rash. During the second phase a high fever can return with an increase in symptoms. Found almost exclusively in the western United States and Canada, mostly in high mountain areas such as Colorado and Idaho.
Cowpox	Red blisters, usually through contact with diseased domestic cats, sometimes directly from rats or domesticated house mice.
Eastern Equine Encephalitis Virus /EEE/ Triple E	Present in North, Central and South America and the Caribbean. Symptoms include high fever, muscle pain, altered mental status, headache, meningeal irritation, photophobia, and seizures, which occur three to 10 days after the bite of an infected mosquito.
Everglades Virus	The virus circulates among rodents and vector mosquitoes and sometimes infects humans, causing a febrile illness with occasional neurological manifestations. Most clinical cases of infection occur in and around the city of Miami.
Hantavirus	Infection occurs through urine, saliva or contact with rodent waste products. May cause potentially fatal diseases in humans, such as hemorrhagic fever with renal syndrome (HFRS) and hantavirus pulmonary syndrome (HPS), but may be asymptomatic with no apparent health effects.
Human Foamy Virus	Has been isolated from patients with various neoplastic and degenerative diseases such as myasthenia gravis, multiple sclerosis, thyroiditis de Quervain, and Graves' disease but the role of the virus is unclear. Recent studies indicate that it is not pathogenic in humans.
Human Herpes Virus 6	Cause of the common childhood illness exanthem subitum (also known as roseola infantum or sixth disease). Found in some patients with neuro-inflammatory diseases such as multiple sclerosis.
Human Herpes Virus 8 / Kaposi's Sarcoma-Associated Herpesvirus /KSHV/HHV-8	Kaposi's sarcoma, primary effusion lymphoma, some types of multicentric Castleman's disease. Healthy individuals can be infected with the virus and show no signs or symptoms, due to the immune system's ability to keep the infection in check. Infection is of particular concern to the immuno-suppressed. Cancer patients receiving chemotherapy, AIDS patients and organ transplant patients are all at a high risk of showing signs of infection.
JC Virus / John Cunningham Virus	Initial site of infection may be the tonsils, or possibly the gastro-intestinal tract. Then remains latent in the gastro-intestinal tract and can also infect the tubular epithelial cells in the kidneys, where it continues to reproduce, shedding virus particles in the urine. Very common in the general population, infecting 70 to 90 percent of humans; most people acquire JCV in childhood or adolescence. It is found in high concentrations in urban sewage worldwide, leading some researchers to suspect contaminated water as a typical route of infection. Causes progressive multifocal leukoencephalopathy and other diseases only in cases of immunodeficiency.
La Crosse Virus	Mosquito-transmitted virus that can cause encephalitis, or inflammation of the brain. Occurs in the Appalachian and Midwestern regions of the United States.
Lassa Virus / Lassa Fever Virus	Causes Lassa hemorrhagic fever. Endemic in West African countries.

Name	Comments
Lymphocytic Choriomeningitis Virus (LCMV)	Spread by the common house mouse. During the initial phase, lasting up to a week, common symptoms include fever, lack of appetite, headache, muscle aches, malaise, nausea, and/or vomiting. Less frequent symptoms include a sore throat and cough, as well as joint, chest, and parotid pain. Second phase starts several days after recovery, and consists of symptoms of meningitis or encephalitis. Congenital infection may lead to malformations such as intracranial calcifications, hydrocephalus, microcephaly or macrocephaly, mental retardation, and seizure.
Murray Valley Encephalitis Virus	Endemic to northern Australia and Papua New Guinea. Causal agent of Murray Valley encephalitis (previously known as Australian encephalitis); in humans can cause permanent neurological disease or death.
Puumala Virus	Hemorrhagic fever with renal syndrome. Found predominantly in Scandinavia and Finland, although it has also been reported elsewhere in Northern Europe, Poland and Russia.
Rift Valley Fever Virus	Causes fever. Mainly in sub-Saharan Africa.
Simian Virus 40	Found in both monkeys and humans. Has the potential to cause tumors, but most often persists as a latent infection. Polio vaccine contaminated with it in 1960's.
Sindbis Virus	Symptoms include arthralgia, rash and malaise. Most common in South and East Africa, Egypt, Israel, Philippines and parts of Australia.
Tick-Borne Encephalitis Virus	Most often manifests as meningitis, encephalitis, or meningoencephalitis; mild fever can also occur. Long-lasting or permanent neuropsychiatric complications are observed in 10-20% of infected patients.
Chikungunya Virus	Causes fever and joint pain; other symptoms may include headache, muscle pain, joint swelling, or rash. Transmitted by mosquito. Outbreaks have occurred in countries in Africa, Asia, Europe, and the Indian and Pacific Oceans and the Caribbean. There is a risk that the virus will be imported to new areas by infected travellers.
Herpes Virus 7	Often acts together with herpes virus 6; can cause a skin condition in infants known as exanthema subitum; also leads to or is associated with a number of other symptoms, including acute febrile respiratory disease, fever, rash, vomiting, diarrhea, low lymphocyte counts, and febrile seizures, though often no symptoms present at all. Over 95% of adults have been infected and are immune to HHV-7, and over three quarters of those were infected before the age of six.
Parvovirus B19	Causes a mild rash illness called erythema infectiosum or Fifth Disease; more common in children than adults. People with weakened immune systems caused by leukemia, cancer, organ transplants, or HIV infection are at risk for serious complications from fifth disease.
Zika Virus	Most common symptoms are fever, rash, joint pain, and conjunctivitis. The illness is usually mild with symptoms lasting from several days to a week. Reports of Guillain-Barré syndrome and pregnant women giving birth to babies with birth defects and poor pregnancy outcomes have been linked to the virus. Outbreaks have occurred in areas of Africa, Southeast Asia, the Pacific Islands and South America. Transmitted by mosquitos.
Coronavirus 2019ncov Vial	The strain of corona virus that started the outbreak in China in early 2020.
MERS Virus / Middle East Respiratory Syndrome Coronavirus	Symptoms range from mild to severe, including fever, cough, diarrhea and shortness of breath. Mortality is about one-third of diagnosed cases.
Molluscum Contagiosum / Pox Virus	Usually, the only symptom is a number of small, firm, raised papules (spots) that develop on the skin; not painful but can be itchy. Normally resolves in a few months without any specific treatment; most commonly affects children, although it can occur at any age.

## MIXED SIBO VIAL

### From Sibo Kit (Product Code 8600)

Small intestinal bacterial overgrowth (SIBO) refers to a condition in which abnormally large numbers of bacteria are present in the small intestine, and the types of bacteria found in the small intestine are more like the bacteria found in the colon. Also known as small bowel bacterial overgrowth syndrome (SBBOS).

Causes include diverticulitis (where the pockets allow the build-up of bacteria), scarring from abdominal surgery (interfering with the proper movement of food and bacteria through the small intestine), Crohn's disease, scleroderma and diabetes mellitus.

Symptoms include flatulence, diarrhea, constipation and abdominal bloating and abdominal pain. May experience body aches and/or fatigue. If the condition is severe or long-lasting, it may interfere with the proper absorption of vitamins and minerals. Weight loss may also be a problem.

Symptoms occur because the bacteria produce gas, compete with their human host for the food in the small intestine, may produce toxic by-products that irritate the small intestine.

This kit has been put together based on the research and clinical practice of Doctors Michael and Noah Lebowitz.

Name	Comments
Bacteroides Fragilis	Involved in 90% of anaerobic peritoneal infections of the abdominal cavity.
Clostridium Botulinum	Botulism, muscle paralysis, vomiting, tiredness, food poisoning.
Clostridium Difficile	Diarrhea, colitis, peritonitis. Often a problem after normal gut flora is eradicated by the use of antibiotics; infection often occurs in hospital and in nursing homes; some adults have low numbers of the bacteria without any symptoms; common in the intestine of babies and infants, but does not cause disease because its toxins do not damage their immature intestinal cells.
Clostridium Perfringens	Pneumonia. Widely distributed in the environment and frequently occurs in the intestines of humans and many domestic and feral animals.
Clostridium Septicum	Causes gangrene. Generally associated with gastro-intestinal or hematologic malignancies. An association Exists with colon carcinoma.
Clostridium Tetani	Muscle rigidity followed by spasmodic muscle contraction with pallor and sweating. Found in soil.
Clostridium Welchii	Cellulitis.
Enterococcus Faecalis / Streptococcus Faecalis	Can cause life-threatening infections in humans, especially in the hospital environment. Frequently found in root canal-treated teeth. Can cause endocarditis and bacteremia, urinary tract infections, meningitis, and other infections. Among the main constituents of some probiotic food supplements.
Enterococcus Faecium	Can be commensal in the human intestine, but it may also be pathogenic, causing diseases such as neonatal meningitis.
Escherichia Coli / E Coli	Causes meningitis in babies, diarrhea, liver abscess, fever, abdominal pain, urinary tract infection. Commensal of human intestine; found in raw and undercooked meat, raw vegetables and unpasteurized milk.
Group A Streptococcus / GAS	Often found in the throat and on the skin. Illnesses include strep throat and occasionally invasive GAS disease. People may be carriers and experience no health problems themselves.
Group B Streptococcus / GBS	In new-borns most commonly causes sepsis (infection of the blood), pneumonia and sometimes meningitis. In adults causes bloodstream infections, pneumonia, skin and soft tissue infections, and bone and joint infections.
Klebsiella Pneumoniae	Pneumonia and urinary tract infections; tends to affect people with underlying diseases, particularly in hospital.



Name	Comments
Staphylococcus Aureus	Respiratory symptoms, conjunctivitis, styes, difficulty in breathing, otitis media, pus in lungs, pneumonia, childhood pneumonia, breathlessness, chest pain, endocarditis, meningitis in elderly, brain abscess, cellulitis, food poisoning, liver abscess, fever, abdominal pain, urinary tract infection. Common skin commensal; some strains are now becoming antibiotic resistant.
Staphylococcus Epidermidis	Breathlessness, chest pain, endocarditis, urinary tract infection.
Staphylococcus Saprophyticus	Often implicated in urinary tract infections and cystitis.
Streptococcus Agalactiae	Neonatal infection, septicemia, meningitis, nosocomial infection. Commensal in intestine and female genital tract.
Streptococcus Lactis	Found commonly as a contaminant in milk and dairy products; a common cause of souring and coagulation of milk; some strains produce nisin, a powerful antibiotic that inhibits growth of many other gram-positive organisms.
Streptococcus Mitis	Part of the normal mammal flora; found in mouth, throat, and nasopharynx. Can cause endocarditis.
Streptococcus Mutans	Dental caries.
Streptococcus Pneumoniae	Conjunctivitis, difficulty in breathing, sinusitis, otitis media, pus in lungs, pneumonia, childhood pneumonia, meningitis, meningitis in elderly and children, brain abscess; associated with increased risk of fatal heart complications including heart failure and heart attacks. Commensal of human upper respiratory tract.
Streptococcus Pyogenes	Sore throat, tonsillitis/ pharyngitis, difficulty in breathing, sinusitis, otitis media, pus in lungs, lung abscess, pneumonia, rheumatic fever, scarlet fever, impetigo, cellulitis, liver abscess, fever, abdominal pain, toxic shock, septicemia.
Streptococcus Salivarius	The principal commensal bacterium of the oral cavity and a normal inhabitant of the upper respiratory tract. The first bacterium that colonises dental plaque, creating favourable conditions for other bacteria.
Streptococcus Viridans	Breathlessness, chest pain, endocarditis.

More information can be found here: <http://www.webmd.boots.com/digestive-disorders/small-intestinal-bacteria-sibo>

## MIXED MYCOTOXINS VIAL

### Found in Mycotoxins Kit (product code 8087)

Mycotoxins are produced by molds. One mold species may produce many different mycotoxins, and the same mycotoxin may be produced by several species.

Mycotoxins have the potential for both acute and chronic health effects via ingestion, skin contact, and inhalation. These toxins can enter the blood stream and the lymphatic system. They inhibit protein synthesis, damage macrophage systems, inhibit particle clearance of the lung, and increase sensitivity to bacterial endotoxin.

There is evidence that they can cause cancers, kidney damage, gastro-intestinal disturbances, reproductive disorders and suppression of the immune system.

Name	Fungal Sources	Comments
Aflatoxins	Aspergillus	Symptoms include anorexia, lethargy, muscle weakness, liver problems (hemorrhages, necrosis and cancer) and engorged kidneys.
Alternariol	Alternaria	A toxic metabolite of the Alternaria fungi. Naturally occurs on fruits, vegetables, and cereals, such as apples, tomatoes, and wheat. Inhibited by light. Highly toxic. May be mutagenic.
Altertoxin	Alternaria	
Brevianamide	Aspergillus sp. (particularly Aspergillus ustus); Penicillium sp.	Causes inflammatory response in lung cells.
Chaetoglobosin A,B,C	Chaetomium, Penicillium discolor	Found in water-damaged houses and in air-conditioning systems.
Citreoviridin	Aspergillus terreus, Penicillium toxicarium, Penicillium ochrosalmoneum	It is believed to be the cause of the acute cardiac Beri-Beri disease.
Citrinin	Aspergillus carneus, Penicillium citrinum, Penicilin expansum, Penicillium verrucosum	Occurs mainly in stored grains, but also in other plant products such as beans, fruits, fruit and vegetable juices, herbs and spices, and also in spoiled dairy products; the cause of yellow rice disease in Japan. Has been shown to result in enlarged kidneys and livers in young broiler chicks.
Cladosporic Acid	Cladosporium	
Cyclopiazonic Acid	Aspergillus flavus, Aspergillus versicolor, Penicillium camemberti, Penicillium commune, Penicillium griseofulvum, Penicillium palitans	
Cytochalasin	Aspegillus clavatus, Bioploaris, Phoma, Zygosporium	Inhibit cellular processes such as cell division.
Diplodiatoxin	Diplodia	
Fumonisin	Fusarium moniliforme	Found in wheat and maize. Also to a lesser extent in rice, sorghum and navy beans. Implicated in oesophageal cancers.

Name	Fungal Sources	Comments
Gliotoxin	Penicillium, Aspergillus, Alternaria, Trichoderma, Gliocladium	Possesses immunosuppressive properties. May be implicated in autism.
Ochratoxin A	Aspegillus niger, Aspergillus ochraceus, Penicillium verrucosum, Penicillin nordicum	Found as a contaminant of a wide range of commodities including beer, wine, grains and cereal products, dried vine fruit, coffee, grape juice, and processed cereal based foods and baby foods. Most European pork has trace amounts of ochratoxin. May be a human carcinogen (particularly urinary tract cancers) and also kidney disorders.
Ochratoxin Mix		Found as a contaminant of a wide range of commodities including beer, wine, grains and cereal products, dried vine fruit, coffee, grape juice, and processed cereal based foods and baby foods. May be a human carcinogen.
Patulin	Paecilomyces, Penicillin sp., Aspergillus sp.	Associated with a range of moldy fruits and vegetables, in particular rotting apples (but not cider) and figs.
Penicillic Acid	Aspergillus ochraceus, Penicillium aurantiocandidum, Penicillium brasilanum, Penicillium melanoconidium, Penicillium polonicum, Penicillium veridicatum	Toxic and carcinogenic.
Roridin E	Stachybotrys chartarum	Water-damaged houses.
Rubratoxin	Penicillium crateiforme	Produced on cereal grains.
Satratoxin G & H	Stachybotrys chartarum	Found in water-damaged houses; toxic to humans and animals. Possible symptoms are a rash that becomes a moist dermatitis, nosebleeds, chest pain, pulmonary hemorrhage, hyperthermia (raised temperature), headaches and fatigue.
Sporidesmin	Bioploaris, Pithomyces chartarum	Facial eczema in animals.
Sterigmatocystin	Aspegillus nidulans, Chaetomium, Emericella nidulans, Bioploaris	Found in water-damaged buildings and some food. Found at significant frequency in urine and blood of patients with gastric or liver cancer; Helicobacter pylori facilitates Sterigmatocystin induced gastric cancer. Highly toxic and carcinogenic.
Tenuazonic acid	Alternaria, Phoma	Found in grain and grain-based products, vegetables (particularly tomato products), fruits and fruit products, wine, beer, sunflower seeds and sunflower oil. It inhibits the protein synthesis machinery.
Trichothecene	Myrothecium, Memnoniella, Phomopsis. Stachybotrys chartarum, Trichothecium, Cyliandrocorpon, Fusarium	Synthesized by around 300 fungal species, infecting the grain of developing cereals such as wheat and maize. Reduces immune response.

Name	Fungal Sources	Comments
Viriditoxin	Aspergillus brevipes, Aspergillus fumigatus, Aspergillus viridinutans, Paecilomyces	Inhibits cell division.
Walleminol	Walleimia	Found on cereals, pulses, dried fruit, cakes, confectionery, conserves. Toxic for some animals.
Zearalenone	Fusarium	Commonly found in maize but can be found also in other crops such as wheat, barley, sorghum and rye, particularly during cool, wet growing and harvest seasons. Has been found in bread. A naturally occurring estrogen that is well recognized as causing hormonal effects in animals.

**References:**

- Mycotoxins and Indoor Molds by Sean P. Abbott, Ph.D. [http://www.uaf.edu/ces/energy/housing\\_energy/resources/mold/Abbott-Mycotoxins.pdf](http://www.uaf.edu/ces/energy/housing_energy/resources/mold/Abbott-Mycotoxins.pdf)
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## MIXED BIOFILMS VIAL

### Found in Biofilms Kit (product code 8135)

**A biofilm** comprises any group of microorganisms in which cells stick to each other and often also to a surface. These adherent cells become embedded within a slimy extracellular matrix that is composed of extracellular polymeric substances (EPS). The cells within the biofilm produce the EPS components, which are typically a polymeric conglomeration of extracellular polysaccharides, proteins, lipids and DNA. Because they have three-dimensional structure and represent a community lifestyle for microorganisms, they have been metaphorically described as "cities for microbes".

**Dental plaque** is a biofilm or mass of bacteria that grows on surfaces within the mouth. It is a sticky colorless deposit at first, but when it forms tartar, it is often brown or pale yellow.

Biofilms may "hide" the bacteria, etc., they enclose, so that they are more difficult to find energetically with tools such as kinesiology and EAV machines.

Or it may be that they can be identified but are more difficult to eradicate.

BIO 01	Bacillus Subtilis Biofilm
BIO 02	Candida Albicans Biofilm
BIO 03	Dental Plaque with Bacilli Biofilm
BIO 04	Dental Plaque with Bacteria and Yeast
BIO 05	Dental Plaque with Cocci Biofilm
BIO 06	Dental Plaque with Fungi & Bacteria
BIO 07	Escherichia Coli bacteria starting to develop a biofilm
BIO 08	Proteus Mirabilis Biofilm
BIO 09	Pseudomonas Aeruginosa Biofilm
BIO 10	Salmonella Enteritidis Biofilm
BIO 11	Serratia Liquefaciens Biofilm
BIO 12	Serratia Marcescens Biofilm
BIO 13	Staphylococcus Aureus Biofilm
BIO 14	Staphylococcus Epidermidis Biofilm
BIO 15	Staphylococcus Sp. Biofilm
	Mixed vial of all of the above

## MIXED INDUSTRIAL & ENVIRONMENTAL CHEMICALS VIAL

### Found in Industrial and Environmental Kits 1 and 2 (product codes 8033 and 8034)

Chemical	Common Uses	Comments
Acetaldehyde/Ethanal	chemical intermediary	flammable; carcinogenic category 3
Chlorobenzene	phenol, DDT, aniline, paint solvent	
p-Cresol/4-Hydroxytoluene	starting material for pesticides and herbicides, phenolic resins, disinfectants, antioxidants, plasticizers, degreasers	toxic
Cyanuric Chloride/ Trichloro-s-Triazene	dyestuffs, pharmaceuticals, herbicides, plastics, explosives, bleaches, disinfectants	
Cyclohexane	nylon, solvent for oils, fats and waxes, paint remover, solid fuel for camping stoves	
Cyclohexanone	nylon, adipic acid, nitrocellulose lacquers, celluloid, artificial leather, printing ink	flammable
Diethanolamine/ Di-(2-Hydroxyethyl)A mine	detergents, emulsifying agents, manufacture of cosmetics, toiletries, bactericidal and herbicidal products	
Diethyleneglycol/ 2,2'- Dihydroxydiethyl Ether	softening agent for textiles, solvent for dyes, moistening agent for glues, paper, cork, sponge and tobacco, solvents and plasticizers in lacquers, photography, stain removers, anti-freeze	
Glycerol/ Glycerin/ 1,2,3- Trihydroxypropane	manufacture of synthetic resins and ester gums, moistening agent for tobacco, inks, lubricants, manufacture of explosives and cellulose films, toothpaste, moisturizer, hair mousse, hair gel, conditioner, conditioner hand and body lotion, shower gel, body wash, mouth wash, gelatine capsules for supplements, cleansing lotion, toning lotion, eye gel, after shave, foundation, sweetening agent in medicines, ear drops, cough mixture, cereal bars, soft-scoop ice cream	synthesized from propylene or as a by-product of soap manufacture
Hydrazine	derivatives used as blowing agents for foam plastics, antioxidants, herbicides, rocket fuel	
Hydrogen Peroxide	chemical production, pollution control, textile and paper industries, cleaning products, food bleaching	in the body involved in destruction of pathogens by white blood cells
Methanol/ Methyl Alcohol, Wood Spirit, Wood Naptha / Wood Alcohol	industrial solvent, manufacture of methanal, methanoic acid and chloromethane, denaturant for ethyl alcohol, anti-freeze, paints, duplicating fluids, paint removers, varnishes, shoe polishes, extraction of animal and vegetable oils, fuel for camping stoves, pharmaceutical solvent	
Naphthalene	dyes tuff intermediates, plasticizers, alkyd resins, polyesters, moth balls	

Chemical	Common Uses	Comments
Nitrobenzene	dyestuffs, manufacture of aniline, soaps, shoe polish	
Polyethylene Glycol / PEG	solvents, pharmaceuticals, textiles, cosmetics, lubricating oils, paint, paper	
Polyvinyl Acetate / PVA	adhesives, thickeners, solvents, plasticizers, in textiles, in concrete additives, production of polyvinyl alcohol	
Poly(Vinylpyrrolidone)/ PVP	adhesives, toiletries, hair spray, detergents, pharmaceuticals and in textile industry for fiber treatment, blood replacement	
Propanone/ Acetone/ Dimethyl Ketone	solvent, manufacture of various chemicals, glues, adhesives, polystyrene cements, dyes, nail polish removers, wood hardeners, storage of acetylene gases	in small quantities in normal human urine, in larger amounts in that of diabetics
Pyridine	solvent particularly for plastics, manufacture of nicotinic acid, various drugs and rubber chemicals	Very smelly, causes temporary sterility in males
Sodium Hydroxide/ Caustic Soda	pulp production for paper, viscose and cellulose, manufacture of other chemicals, vegetable oils, aluminum, petrochemicals, textiles, soap, detergents, oven cleaners and drain cleaners	
Styrene/ Ethenylbenzene/ Vinylbenzene	manufacture of polymers particularly polystyrene and synthetic rubber, stabilizing agent, dental filling component, food packaged in polystyrene, floor waxes, paints, adhesives, putty, metal cleaners, car fillers, two-part fillers, cigarette smoke	possibly carcinogenic to humans
Toluene	high-octane aviation and motor fuel, solvent, manufacture of benzene, caprolactam, phenol and dyestuffs, damp treatments, glues, inks, paints, lacquers, perfumes, nail varnish, furniture polish, extraction of various principles from plants, adhesives	
Triethanolamine/ Tri-(2- Hydroxyethyl)Amine	Detergents, emulsifying agents, manufacture of cosmetics, toiletries, bactericidal and herbicidal products.	
Vinyl Acetate/ Ethenyl Ethanoate/ Vinyl Ethanoate	manufacture of adhesives, paints, coatings, paper and textile finishes, molding components	
o-Xylene	industrial solvent, petrol ingredient, phthalic anhydride, sterilising catgut	
Abietic Acid	plastics, paints, varnishes, paper size, detergents	used extensively
Aniline	antioxidants, rubber manufacture, dyes and pharmaceuticals	US 372,000 tons in 1986
Aviation Gasoline	in air pollution	
Benzene	industrial pollution - given off when petrol put into cars, industrial solvent, ethylbenzene, cumene, cyclohexane, styrene, phenol, nylon, synthetic detergents, dyes, paints, varnish removers, adhesives, pharmaceuticals	
Bromometane/ Methyl Bromide	fumigates soil, commodities, grain, warehouses and mills	very toxic, widely used
Capryl Alcohol/ 1-Octanol/ Secondary Octyl Alcohol	foam-reducing agent, plasticizers, perfumery, cosmetics, solvent, chemical intermediate	

Chemical	Common Uses	Comments
Cellulose Acetate	fibers for clothing and furnishing, lacquer, cellophane, cigarette filters, magnetic tape, spectacle frames, screwdriver handles	
Cetyl Alcohol/ Hexadecanol	extensively used in pharmaceutical and cosmetics, gel stabilizer for greases	
Chloromethane/ Methyl Chloride	silicones, anti-knock additive in petrol, butyl rubber manufacture, methyl cellulose, blowing agent for polystyrene foam	
Decyl Alcohol/ Decanol	plasticizers, detergents	commercially important
1,2-Diaminoethane/ Ethylenediamine	detergents, emulsifying agents, industrial solvent, textiles, paper, coatings, films, adhesives, rubber formulation	
1,2-Dibromoethane/	leaded petrol, fumigant for stored products, nematocide	
Dichloromethane/ Methylene	industrial solvent, paint remover, degreaser, aerosol propellant	
Diesel Range Organics	air pollution	contains n-decane, n- dodecane, n-tetradecane, n-hexadecane, n- octadecane, n-eicosane, n-docosane, n- tetracosane, n- hexacosane, n- octacosane, n-hexane
Dimethylamine	manufacture of other chemicals, including solvents, herbicides, fungicides and rubber accelerators	
Dioctyl Phthalate	plastics	most commonly used plasticizer; can migrate into food from packaging
Ethanol/ Ethyl Alcohol/ Alcohol/ Spirits of Wine	starting point for many other chemicals, in foodstuffs, as solvent, cosmetics, alcoholic drinks, methylated spirit, surgical spirit	
bis (2-Ethylhexyl) Phthalate		one of most common phthalates found in food samples. Carcinogenic in mice and rats.
Glycolic Acid/ Hydroxyethanoic Acid/ Hydroxyacetic Acid	textile and leather processing, cleaning (metals and dairy sanitation)	
Halazone	sterilization of drinking water	
Jet Turbine Fuel	air pollution	
Methanoic Acid/ Formic	textile dyeing and finishing, leather tanning, intermediate for other chemicals	
Monoethanolamine/ 2-AminoEthyl Alcohol/ 2-Hydroxyethylamine	detergents emulsifying agents manufacture of cosmetics, toiletries, bactericidal and herbicidal products	great commercial importance
Nitric Acid	fertilizers, explosives, dyestuffs, wart preparations	
Phthalic Anhydride	dyestuffs, plasticizers, alkyd resins	



## MIXED INDUSTRIAL & ENVIRONMENTAL CHEMICALS 3 VIAL

### Found in Industrial and Environmental Chemical 3 Kit (product code 8070)

Name	Comment
Adipic Acid	Used in the manufacture of nylon, polyester, polyurethane, polypropylene and PVC. Also used in detergents.
Aluminum Hydroxide / Aluminum Trihydrate / Aluminum Hydrate	Used in vaccines, manufacture of glass and glazes, as a flame retardant in plastics, in paper manufacture, printing inks, detergents, for waterproofing fabrics, in mouthwashes and deodorants. Also used as a carrier of artificial colorings particular for uses involving coloring oils and fats, or where the product does not contain sufficient water to dis solve the color. (Would not need to be shown in the list of ingredients when used as a color carrier.
Bisphenol A	Major constituent of plastics. Also used as a sealant and in adhesives including in dentistry. An endocrine disruptor, which can mimic body's own hormones. Worrying levels found in breast milk and in people generally. In 2007, a consensus statement by 38 experts on bisphenol A concluded that average levels in people are above those that cause harm to animals in laboratory experiments.
1,3-Butadiene	An important industrial chemical used as in the production of synthetic rubber.
2-Chloro-1,3-Butadiene / Chloroprene	Involved in the production of polychloroprene/neoprene.
Dibromacetic Acid / DBA	Found in drinking water when chlorine disinfectants combine with naturally occurring organic matter.
Ethylene Dichloride / 1,2-Dichloroethane	Used in the manufacture of vinyl chloride. Also an additive in petrol and so found in vehicle exhaust fumes.
Glutaraldehyde	Glutaraldehyde-based disinfectants used for cleaning and sterilising equipment and surfaces in hospitals, dentists, etc. Used in manufacture of paper packaging that will be in contact with food.
Heptane	A solvent used in the production of oils, and in manufacture of adhesives.
Hexachlorobenzene / Perchlorobenzene	A chemical intermediate and a solvent for pesticides. Has been identified in breast milk. Research suggests it may be carcinogenic for humans.
Hexane	A widely used industrial chemical used, for example, in pesticide manufacture, as a cleaning agent in the printing industry, and as a solvent for varnishes and adhesives.
Perfluorononanoic Acid / PFNA	Used in industrial processes; some industrial chemicals may degrade into this chemical. A developmental toxicant and an immune system toxicant.
Perfluorooctanesulfonic Acid / PFOS / Perfluorooctane Sulfonate / Heptadecafluorooctanesulfonic Acid	Used to make fire-fighting foams, in textiles, paper, and leather; in wax, polishes, paints, varnishes, and cleaning products for general use; in metal surfaces, and carpets.

Perfluorooctanoic Acid / PFOA / C8/ Perfluorocaprylic Acid	Used in mixing process for dyes, detergents and personal care products; non-stick cookware and stain- and water-resistant coatings for carpets and fabrics. Detected in the blood of general populations in the low parts per billion range where single studies have associated it with infertility, higher cholesterol, and thyroid disease. In highly exposed groups, some studies have associated PFOA exposure with birth defects, increased cancer rates, and changes to lipid levels, the immune system and the liver.
Phthalate Mix	Used to make plastics softer and more flexible. Wide spread health concerns. This vial contains Benzyl butyl phthalate, Bis (2-ethylhexyl) adipate, Bis (2-ethylhexyl) phthalate, Dibutyl phthalate, Diethyl phthalate, Dimethyl phthalate and Dioctyl phthalate.
Polychlorinated Biphenyls (PCB) Mixed	A group of chemicals that have been banned but are still found in the environment, electrical equipment, wall coverings, paints and plastic. Have been found in breast milk. This vial contains 2-Chlorobiphenyl, Decachlorobiphenyl, 2,3,3'-Dichlorobiphenyl, 2,2',3,4',5,5',6-Heptachlorobiphenyl, 2,2',3,3',6,6'- Hexachlorobiphenyl, 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl, 2,2',3,3',4,4',5,5' - Octachlorobiphenyl, 2,3',4,5',6-Pentachlorobiphenyl, 2,2',4,4'- Tetrachlorobiphenyl and 2,4,5-Trichlorobiphenyl.
Polyethylene / Polythene / PE	Most common plastic. This vial contains high-density polyethylene (HDPE) and low-density polyethylene (LDPE). Used to make milk bottles, washing up liquid bottles, children's toys, carrier bags, bin liners and industrial bags, Also used extensively for consumer packaging including shrink film and squeeze bottles for food, personal care products, etc. Also found as carpet backing and in joint replacements.
Polyethylene Terephthalate/ PET / PETE	Beverage, food and other liquid containers. Used in synthetic fibers. Trade names include Dacron, Diolen, Tergal, Terylene, Trevira, Cleartuf, Eastman PET, Polyclear, Hostaphan, Melinex and Mylar.
Polyactic acid / Polylactide / PLA	Biodegradable so use likely to increase. Beverage cups, microwavable disposable trays, deli containers, sandwich packaging, medical sutures and stents.
Polymethylpentene	Coating for paper food containers for microwave and conventional ovens; used for gas permeable packaging, autoclavable medical and laboratory equipment, microwave components, and cookware.
Polypropylene/ Polypropene / PP	Second most common plastic. Used for dishwasher-safe and microwavable food containers, drinking straws, yoghurt pots and margarine tubs, confectionery and tobacco packaging. Used for carpets under the trade names of Olefin, Astra, Zylon and Charisma. Other uses include toys, drinking straws, car/automobile interiors, artificial grass, bristles for brushes and brooms, thermal and cold weather sports clothing, and toner for photocopiers and printers.
Polystyrene/ PS	Yoghurt pots, egg boxes, plastic cutlery and foam drink cups; protective packaging and insulation.
Polytetrafluoroethylene / PTFE / Teflon	Used in non-stick cookware, plumbers' jointing tape, and as an additive in lubricants.
Tetrachloroethylene / Perchloroethylene / PCE / Ethylene Tetrachloride/ PERC	A solvent commonly used in dry cleaning fluid, spot removers, aerosols, shoe polishes and typewriter correction fluid. Also used by car/automobile mechanics. High levels found in breast milk.
Trichloroethylene	A solvent used to remove grease from textiles and metal parts, and in the extraction of vegetable oils. Restrictions on levels in drinking water.

## MIXED INDUSTRIAL & ENVIRONMENTAL CHEMICALS 4 VIAL

### Found in Industrial and Environmental Chemical 4 Kit (product code 8105)

Name	Comment
Acrolein	Primarily used as an intermediate in the synthesis of acrylic acid and as a biocide; may be formed in cigarette smoke, from burning oil (including cooking oil), from the breakdown of certain pollutants in outdoor air, vehicle exhaust fumes, and forest and wild fires. Toxic and is a strong irritant for the skin, eyes, and nasal passages.
Acrylonitrile	In cigarette smoke; used in the manufacture of acrylic and modacrylic fibers; also used as a raw material in the manufacture of plastics; may be released to the air during its manufacture and use; also from landfills, and through incineration of sewage sludge.
Carbon Monoxide / CO	Produced from the partial oxidation of carbon-containing compounds, forming when there is not enough oxygen to produce carbon dioxide, such as when operating a stove or an internal combustion engine in an enclosed space. Natural sources of CO include volcanoes, forest fires, and other forms of combustion. Produced in normal metabolism in low quantities and is thought to have some normal biological functions.
Chloroform	May be released into the air from a large number of sources related to its manufacture and use, including pulp and paper mills, hazardous waste sites, and sanitary landfills; also formed in the chlorination of water (drinking, waste and swimming pools); chlorinated drinking water releases chloroform when hot water is used in the home.
Decabromodiphenyl Ether / Pentabromophenyl Ether	Flame retardant; used in soft furnishings, mattresses, some synthetic curtains and the backs of televisions.
Disperse Blue 106 and 124	Two dark blue textile dyes found in fabrics colored dark blue, brown, black, purple, and some greens; frequently found in acetate and polyester liners of clothing, and in lycra exercise clothing in these colors; also in dark nylon stockings / panty hose. Known to cause dermatitis.
Fluorosilicic Acid / Hexafluorosilicic Acid / Silicofluoric acid	The most commonly used chemical for water fluoridation.
1,2,5,6,9,10-Hexabromocyclododecane / HBCD / HBCDD	A flame retardant; primary application is in extruded and expanded polystyrene foam that is used as thermal insulation in the building industry; also used in upholstered furniture, automobile interior textiles, car cushions and insulation blocks in trucks, packaging material, video cassette recorder housing and electric and electronic equipment.
Hexachlorobutadiene / Hexachloro-1,3-Butadiene / HCBD	Used mainly as an intermediate in the manufacture of rubber compounds; also used in the production of lubricants, as a fluid for gyroscopes, as a heat transfer liquid, and in hydraulic fluids. Small amounts found in the air and in drinking water.
Hydrocarbon Mix	Contains decane, hexadecane, tetratriacontane and pentacontane; the major part of diesel and aviation fuel, part of lubricating oils and anti-corrosive agents.
Indoor Air Pollution Mix	50 chemicals commonly found (and of concern) in indoor air pollution including 2-propanol, n-undecane, styrene, acetone, m-xylene, etc.

Name	Comment
Isoprene / 2-Methyl-1,3-Butadiene	Produced and emitted by many species of trees into the atmosphere (major producers are oaks, poplars, eucalyptus, and some legumes). Cigarette smoke.
Isopropanol / Isopropyl Alcohol	One of the most widely used solvents in the world; also used as a chemical intermediate.
n-Butanol / 1-Butanol / Butyl Alcohol	Present in many foods and beverages; a permitted artificial flavorant in the United States; an ingredient in perfumes and used as a solvent for the extraction of essential oils; used in the manufacture of antibiotics, hormones, and vitamins; as a solvent for paints, coatings, natural resins, gums, synthetic resins, dyes, alkaloids, and camphor; acts as a swelling agent in textiles, as a component of hydraulic brake fluids, cleaning formulations, degreasers, and repellents, and as a component of ore floatation agents, and of wood-treating systems.
Polycyclic Aromatic Hydrocarbons / PAH Mix	Produced when coal, oil, gas, petrol, wood, garbage, forming small particles in the air. High temperature cooking will form PAHs in meat and in other foods. Cigarette smoke contains PAHs. The United States Environmental Protection Agency has designated 32 PAH compounds as priority pollutant. Exposure linked to decreased lung function, neurological disorders, cancer, heart attacks, low birth weight, premature births and childhood developmental delay.
Potassium Dichromate	Most commonly found in cement and leather; also found in chemicals used to etch/clean glass, photography and photographic screen printing. Common allergen.
Propylene Dichloride / 1,2-Dichloropropane	Used as a chemical intermediate in the production of chlorinated organic chemicals, as an industrial solvent, in ion exchange manufacture, in toluene diisocyanate production, in photographic film manufacture, for paper coating, and for petroleum catalyst regeneration. Propylene dichloride is also emitted from landfills.
Quinoline	Used mainly as an intermediate in the manufacture of other products; also used as a catalyst, a corrosion inhibitor, in metallurgical processes, in the manufacture of dyes, as a preservative for anatomical specimens, in polymers and agricultural chemicals, and as a solvent for resins and terpenes. It is also used as an antimalarial medicine. A potential source of very low exposure to quinoline includes the inhalation of ambient air contaminated by emissions from petroleum refining, quenching and coking, and wastewater processing.
Sodium Fluoride	Used in water fluoridation and in fluoride toothpaste.
Sodium Fluorosilicate	Used in water fluoridation.
Sodium Sulphite	Used in water treatment and to reduce chlorine levels in pools, and in the pulp and paper industry; used in photographic developing and in the textile industry and the leather trade. Used as a preservative to prevent dried fruit from discoloring and for preserving meats.
Sulphur Dioxide	Major air pollutant, particularly after a volcanic eruption. Can cause breathing difficulty for people with asthma; long term exposure causes respiratory illness and aggravates cardiovascular diseases; linked to infant death, ischemic stroke, respiratory disease, and premature death. Used as a preservative for dried fruit; used in wine making.
3,3',5,5'-Tetrabromobisphenol A / TBBPA / 4,4'-Isopropylidenebis(2,6-Dibromophenol)	A flame retardant used in televisions and printed circuit boards; an endocrine disruptor and immunotoxicant; structurally mimics the thyroid hormone thyroxin (T4) and can bind more strongly to the transport protein transthyretin than T4 does, likely interfering with normal T4 activity.
Trihalomethanes Mix	Many trihalomethanes find uses in industry as solvents or refrigerants. THMs are also environmental pollutants, and many are considered carcinogenic. Formed as a by-product predominantly when chlorine is used to disinfect water for drinking.

<b>Name</b>	<b>Comment</b>
Vinyl Chloride	Found in cigarette smoke, used to make PVC plastic and vinyl products. Sources of emissions include the discharge of exhaust gases from factories that manufacture or process vinyl chloride, landfills, or evaporation from areas where chemical wastes are stored.



## MIXED PESTICIDE 1 VIAL

### From Pesticide 1 Kit (product code 8040)

English	Comments
2,4,5-T /Dioxin / CAS 93-76-5	organochloride; on the EU List of 129; International Pesticide Network wishes to stop use; use being phased out; possibly carcinogenic to humans; herbicide; component of 'Agent Orange' (defoliant) in Vietnam war, during this war the US military dropped 40 million kilogram on Vietnam; probably carcinogenic in humans; still in use from railway companies as a herbicide on the railway.
Aldicarb / Temik/ CAS 116-06-3	International Pesticide Network wishes to stop use; WHO class 1a; used in cultivation of cotton, peanuts, cucumber, watermelons, potatoes, soya beans and ornamental plants; disturbs hormone equilibrium in rats
Amitrole /Amino-Triazol / CAS 61-82-5	herbicide, water soluble, not fat soluble; used in cultivation of fruits and ornamental plants; low acute and chronic toxicity, but probably carcinogenic for humans
Atrazine / CAS 1912-24-9	organochloride; on UK Red List; possibly carcinogenic to humans; herbicide; non-selective herbicide, low solubility in water, forbidden in many countries in other countries used in cultivation of sugar cane, pineapple and timber; probably carcinogenic for humans; hormonal effects are similar to estrogen
Bromophos / CAS 4824-78-6	WHO class 1b; organic phosphate, WHO class 1b; low to medium toxicity
Camphchlor / Toxaphene / CAS 8001-35-2	banned in EU; International Pesticide Network wishes to stop use; used in cultivation of cotton, soya beans, peanuts; most probably carcinogenic, liver damage through long term exposure to higher doses
Captan / CAS 133-06-2	non-systemic fungicide, used against fungus on fruits, ornamental plants and tomatoes; also used by amateur gardeners; low acute toxicity for humans but probably carcinogenic
Chlormequat / CCC / CAS 999-81-5	plant growth regulator; insecticide; used in cultivation of grains, grapes and pears; probably not carcinogenic
Deiquat / CAS 2764-72-9	non-selective herbicide; plant growth regulator; used in general and specifically for sugar cane; medium toxicity for humans; kidney damage and eye cataracts through long term exposure
Diazinon / CAS 33-41-5	organophosphate; insecticide; used as a sheep dip, particularly until 1990's when synthetic pyrethroids ( e.g. cypermethrin and flumethrin) were introduced; widely used for pest control in cultivation of food and ornamental plants; is contained in some agents for indoor use; low to middle acute toxicity; potential mutagen; in human body it breaks down into diazoxone, which is a strong enzyme inhibitor
Dichlorvos / CAS 62-73-7	organophosphate, Cholinesterase inhibitor, insecticide; used in storage rooms against flies, mites, spiders, etc., and in plant cultivation; used as a treatment against worms in humans and animals; on UK Red List; WHO Class 1b; highly toxic by inhalation, skin contact and ingesting; usually quickly excreted by the body; mutagenic and probably carcinogenic
Dieldrin / CAS 60-57-1	organochloride; banned in EU; WHO class 1b; insecticide; widely used from 1950 until early 70's against termites and beetles, for treatment of seeds, against mosquitoes and the Tse-Tse-fly, on sheep, as a wool impregnating agent against moths and also as a wood impregnation; chronic effects: liver damage, disturbed immune system; carcinogenic in animal test; stored in fat tissue, difficult for the body to excrete or break down

English	Comments
DNOC / Dinitroresol / CAS 534-52-1	WHO class 1b; highly toxic; damages liver, kidneys and nervous system; leads to hyperthermia, tachycardia, dehydration and toxic psychosis
Endosulfane / CAS 959-98-8	insecticide and acaricide; chlorinated carbohydron, insecticide, acaricide; fat- soluble; not allowed in Germany; on UK Red List; contact poison for a wide range of insects and mites; high acute toxicity for humans; damage on kidneys, liver, blood chemistry and parathyroid; probably mutagenic and almost certainly carcinogenic
Heptachlor / CAS 76-44-8	organochloride; banned in EU; chlorinated carbohydron, insecticide, fat-soluble; high acute toxicity for humans; stored in fat tissue; affects nerves; symptoms of acute or chronic toxicity include irritability, over-stimulated salivation, lethargy, vertigo, dazed feeling, difficult breathing, muscle spasm and tremble, infertility, disturbed female cycle, liver damage, kidney damage, increased number of red blood cells, mutagenic, carcinogenic; affects steroid metabolism
Hexachlorbenzene / HCB / CAS 118-74-1	organochloride; chlorinated carbohydron; fungicide; banned in EU; WHO class 1a; low acute toxicity; effects of higher doses include tremor, paralysis, weakness; probably carcinogenic for humans; speed of breaking down of hormones in the body is changed
Lindane / CAS 58-89-9	organochloride; pesticide; no longer produced in USA; used in cultivation of sugar beet; highly toxic for humans; stimulates the central nerve system with symptoms like mental and motor regression, nerve overactivity, failure of breathing, lung oedema and dermatitis; carcinogenic for humans; change of testicles in laboratory animals
Maneb / CAS 12427-38-2	fungicide; used in cultivation, transport and storage of plants and seeds; medium acute toxicity; possible chronic effects include dermatitis, tremor, weakness, depression, paralysis, mal-digestion, co-ordination problems; affected organs are thyroid, kidney and heart; disturbs hormone regulation; cooking treated vegetables probably increases carcinogenic effect
MCPA / CAS 94-74-6	chlorinated carbohydron; systemic herbicide particularly for grain and grass; low acute toxicity; long term effects in animal experiments include growth obstruction, kidney damage, disturbed reproduction; in humans: muscle weakness, reversible anemia, stomach problems, slight liver problems
Methoxychlor / CAS 72-43-5	organochloride; insecticide; not allowed in Germany; various uses in agriculture, and by amateurs; high increase in use since ban of DDT; relatively low toxicity and short retention time in biological systems; in animal experiment loss of weight and growth disturbance found on long term exposure
Paraquat / CAS 2074-50-2	herbicide; banned in some Scandinavian countries; highly toxic for humans; affects lungs, kidney and liver, wide range of symptoms, possibly carcinogenic for humans; International Pesticide Network wishes to stop use
Parathion / CAS 56-38-2	organophosphate; insecticide and acaricide; under consideration for the UK Red List; WHO class 1a; used in cultivation and storage of grain; highly toxic for humans; possible symptoms from acute exposure include breathing problems, nose bleeding, coughing, shortness of breath; probably carcinogenic; disturbs hormone balance
Pentachlorophenol / PCP / CAS 87-86-5	organochloride; insecticide; fungicide; WHO class 1b; banned in Germany since 1989, but many residual pollution in buildings and imported leather goods and textiles; mainly used to protect construction wood against insects and fungus, but also in paper and clothing industries; very toxic for humans; symptoms from acute exposure include sweating, dehydration, loss of appetite, loss of weight, vertigo, uncontrolled movements, coma; chronic exposure may result in stomach-ache, vertigo, fever, breathing problems



English	Comments
Pyrethrum / CAS 8003-34-7	natural insecticide from the chrysanthemum plant; used in sprays against lice, mosquitoes (evaporation papers), flies, cockroaches, also in storage of grain, in poultry farming and on cats and dogs
Thomasmehl	by-product in iron smelting, used as a fertilizer

*Organochlorides* kill pests by attacking their central nervous systems. Linked to cancer, birth defects and genetic changes in animals. They are fat soluble and stored in body fat. They are far more persistent than organophosphates.

*Organophosphates* interfere with nerve conduction in pests. They are the most common pesticide used today. They are water soluble and break down rapidly.

*Acaracides* are the class of pesticides used against mites and ticks.

*The Red List*: compiled by UK Department of Environment in 1989; the Government wishes to reduce input of these substances.

*The EU List of 129 (Priority Candidate List)*: most extensively used and most hazardous of chemicals which are next in line to be included in the EU black lists or grey lists.

*Carcinogenic rating* taken from information supplied by The International Agency for Research on Cancer and the US Environmental Protection Agency.

WHO Class 1 Pesticides: Class 1a is extremely hazardous;  
Class 1b is highly hazardous.

CAS: Chemical Abstract Service Numbers. A system for allocating numbers to all chemicals.

Cholinesterase Inhibitor: Cholinesterase is a very important enzyme for the normal functioning of the nerve system in humans, vertebrates and insects. It breaks down transmitter substances like acetylcholine. Some of the pesticides like the organophosphates interfere with this enzyme or block it and disturb the normal functioning of the nervous system. They are made to kill insects by these effects. If such chemicals are present in the synapses of the nerve system, some neurotransmitters accumulate because the enzymes that break them down do not work. This leads to over-stimulated nerve functioning with symptoms like: sleepiness, vertigo, blurred vision, headache, sweating, over-stimulated excretion of tears, etc.

#### References:

EXTOXNET Extension Toxicology Network, Internet: <http://ace.ors.t.edu/info/extoxnet> Brochure from Umweltgifte mit hormoneller Wirkung, Umweltstiftung WWF-Deutschland, Fachbereich Meere und Küsten, Am Güthpol 11, 28757 Bremen, Tel. 0421 / 65846-10  
Various internet web sites  
Information from The Pesticide Network  
Information from Klaus Schäfer, Wolfenweiler, Germany

## MIXED PESTICIDE 2 VIAL

Found in Pesticide 2 Kit (product code 8071)

Name	Chemical Abstracts Service (CAS)	Alternative Names	Comments
Herbicides Mix A			Contains Atrazine, Bromacil, Butylate, Cycloate, S-Ethyl-N,N- dipropylthiocarbamate, Hexazinone, Isopropalin, Metribuzin, Molinate, Oxyfluorfen, Pebulat, Terbacil, Trifluralin
Herbicides Mix B			Contains Benfluralin, Metolachlor, Oxadiazon, Profluralin, Propachlor, Propazine, Prowl (Pendimethaline), Simazine, Vernolat
Pesticides Mix A			Contains $\alpha$ -BHC, 4,4'-DDT, Decachlorobiphenyl, Dieldrin, $\alpha$ -Endosulfan, Endrin, Heptachlor, Lindane, Methoxychlor, 2,4,5,6-Tetrachloro-m-xylene
Pesticides Mix B			Contains Aldrin, $\beta$ -BHC, $\delta$ -BHC, $\alpha$ -Chlordane, $\gamma$ -Chlordane, 1,1-Dichloro-2,2-bis (4-chlorophenyl)ethene, Decachlorobiphenyl, $\beta$ -Endosulfan, Endosulfan sulfate, Endrin aldehyde, Endrin ketone, Heptachlor exo-epoxide, 2,4,5,6-Tetrachloro-m-xylene
Pesticides Mix C			Contains Aldrin, $\alpha$ -Benzene Hexachloride, $\beta$ -a-Benzene Hexachloride, $\delta$ -a-Benzene Hexachloride, 1,1-Dichloro-2,2-bis (4-chlorophenyl)ethane, 1,1-Dichloro-2,2-bis (4-chlorophenyl)ethene, 4,4'-DDT, Dieldrin, $\alpha$ -Endosulfan, $\beta$ -Endosulfan, Endosulfan sulfate, Endrin, Endrin aldehyde, Heptachlor, Heptachlor exo-epoxide, Lindane
Pesticides Mix D			Contains Azinphos -methyl, Chlorpyrifos, Dichlorvos, Disulfoton, Ethoprophos, Fenchlorphos, Parathion-methyl, Prothiofos
Carbaryl	63-25-2	Arkotine, Azotox, Bosan Supra, Bovidermal, Chlorophenothane, Chlorophenotoxu, Citox, Clofenotane, Dedelo, Deoval	Insecticide; the third most used insecticide in the United States for home gardens, commercial agriculture, and forestry and rangeland protection.
Carbendazim	10605-21-7		One of the most common residues found in food in the European Community.
Chlorothalonil	1897-45-6		Fungicide used to control mold, mildew, bacteria, algae. The third most used fungicide in the US (for peanuts, potatoes and tomatoes).

Name	Chemical Abstracts Service (CAS)	Alternative Names	Comments
Chlorpyrifos	2921-88-2	Ditoxan, Dibovan, Dicophane, Didigam, Didimac, Dodat, Dykol, Estonate, Genitox, Gesafid, Gesapon, Gesarex, Gesarol	One of the most widely used organophosphate insecticides. The crops with the most intense chlorpyrifos use are cotton, corn, almonds, and fruit trees including oranges and apples. Banned for use in U.S. households but is still widely used throughout the agricultural industry – is associated with early childhood developmental delays, according to a study by Researchers at Columbia University's Mailman School of Public Health. U.S. Environmental Protection Agency (EPA) and the U.S. Department of Housing and Urban Development (HUD) collected samples (in 2009) with surface wipes from U.S. kitchen floors. Chlorpyrifos on 78%.
Cyprodinil	121552-61-2	Cyprodinil Technical, Vangard WP Fungicide, Vangard WG Fungicide	Fungicide. One of the most common residues found in food in the European Community.
2,4-D / 2,4-Dichlorophenoxyacetic Acid	94-75-7		The most widely used herbicide in the world.
4,4'-DDD / TDE / 1,1-Dichloro-2,2-bis (4-chlorophenyl)ethane	72-54-8		A constituent of commercial DDT and a breakdown product of DDT. Due to its stability in fat, DDE is rarely excreted from the body, and body levels tend to increase throughout life. Substantial levels found in breast milk and in animal fat.
4,4'-DDE / 1,1-Dichloro-2,2-bis (4-chlorophenyl)ethene	72-55-9		A constituent of commercial DDT and a breakdown product of DDT. Due to its stability in fat, DDE is rarely excreted from the body, and body levels tend to increase throughout life. Substantial levels found in breast milk and in animal fat. An increased risk of testicular germ cell tumors. Has been linked to diabetes.
DDT  (This is not a vial in this kit but all the constituents of commercial DDT are.)			Commercial DDT is banned in most countries but is a persistent pollutant in the environment. It is a mixture of several closely-related compounds. 4,4'-DDT (77%) and 2,4'-DDT (15%) are the main chemicals with DDE and DDD making up the balance. DDE and DDD are also the major metabolites and breakdown products in the environment. All four are in this kit.
2,4'-DDT	789-02-6		Insecticide. Part of commercial DDT. Evidence of impaired fertility from animal studies. Banned in most countries but still found in fat tissue (both human and in animals /fish we eat) and breast milk.

Name	Chemical Abs tracts Service (CAS)	Alternative Names	Comments
4,4'-DDT / 1,1,1-Trichloro-2,2- bis (4- chlorophenyl)ethane / 1,1-Bis (4- chlorophenyl)- 2,2,2- trichloroethane	50-29-3		Insecticide. Part of commercial DDT. Evidence of impaired fertility from animal studies. Banned in most countries but still found in fat tissue (both human and in animals / fish we eat) and breast milk.
Endrin	72-20-8		Insecticide; global ban taking affect mid 2012, but persistent in the environment. Endocrine disrupter and possibly carcinogenic.
Glyphosate	1071-83-6	Roundup, Glyphomax, Roundup Ultra, Accord, Shackle	Most used herbicide in USA. Used by public as well as in agriculture.
Imazalil	35554-44-0		One of the most common residues found in food in the European Community.
Imidacloprid	138261-41-3	Kohinor, Admire, Advantage (Advocate) (flea killer for pets), Gaucho, Mallet, Merit, Nuprid, Prothor, Turfthor, Confidor, Conguard, Hachikusan, Premise, Prothor, Provado, and Winner	One of the most widely used insecticides. Available in products for home use.
Malathion	121-75-5	Carbophos, Maldison, Mercaptothion	Insecticide; studies have shown that children with higher levels of malathion in their urine seem to be at an increased risk of attention deficit hyperactivity disorder.
Metolachlor	51218-45-2		Evidence of it in ground and surface water. Concentrations have been found in fish.
Parathion-Methyl	298-00-0	Methyl Parathion, Dimethyl Parathion, Bladan M, Metaphos	Insecticide. Used to control chewing and sucking insects in a wide range of crops, including cereals, fruit, vines, vegetables, ornamentals, cotton and field crops. Residues are regularly detected in a range of fruit and vegetables.
Piperonyl Butoxide	51-03-6		Combined with other pesticides, products with piperonyl butoxide are often used to target mosquitoes, ants, worm, beetles, mites, flies, gnats, spiders, weevils, caterpillars, grubs, moths, ticks, lice, wasps, aphids, midges. U.S. Environmental Protection Agency (EPA) and the U.S. Department of Housing and Urban Development (HUD) collected samples (in 2009) with surface wipes from U.S. kitchen floors. Pipeonyl butoxide on 52%.
Trifluralin	1582-09-8		One of the most widely used herbicides used to control grass and weeds.

## MIXED PESTICIDE 3 VIAL

### Found in Pesticide 3 Kit (product code 8072)

Name	CAS Number	Alternative Names	Comments
Acephate	30560-19-1		Used primarily for control of aphids, including resistant species, in vegetables (e.g. potatoes, carrots, greenhouse tomatoes, and lettuce) and in horticulture (e.g. on roses and greenhouse ornamentals).
Acetamiprid	135410-20-7	Assail, Pristine, Chipco, Bug Clear	Crops such as leafy vegetables, citrus fruits, apples, grapes, cherry, cotton and ornamental plants. Available in products for home use.
Aldrin	309-00-2		Banned by the Stockholm Convention on Persistent Organic Pollutants. Although banned still found in fat tissue (both human and in animals /fish we eat) and breast milk. Aldrin exposure increases the likelihood of diabetes.
Azinphos -Methyl / 4, 4' - dichlorodiphenyltrichloroethane /4, 4' - dichlorodiphenyltrichloroethane	86-50-0	Agritan, Anofex	Used on nut trees, vegetable crops, and fruit trees. Has been linked to health problems in farmers who use it.
Chlordane	57-74-9		Banned by the Stockholm Convention on Persistent Organic Pollutants. Found in breast milk. U.S. Environmental Protection Agency (EPA) and the U.S. Department of Housing and Urban Development (HUD) collected samples (in 2009) with surface wipes from U.S. kitchen floors. Chlordane on 74%.
Chlorpropham / Chlorpropham	101-21-3		A plant growth regulator and herbicide. Used to control potato sprouting, and on beans, blueberries, cranberries, carrots, onions, spinach, sugar beets, tomatoes, safflower, soybeans, etc.
Clopyralid	1702-17-6	Guesapon, Guesarol, Gyron, Haver-extra, Hildit, Ivoran, Ixodex, Kopsal, Mutoxin, Neocid, OMS-16, Parachlorodicum, Peb1	Used for control of broadleaf weeds, especially thistles and clovers. Was widely used in USA for weed control in lawns until prohibited in 1999.
Cypermethrin	52315-07-8		An insecticide in large-scale commercial agricultural applications as well as in consumer products for domestic purposes. Found in many household ant and cockroach killers. U.S. Environmental Protection Agency (EPA) and the U.S. Department of Housing and Urban Development (HUD) collected samples (in 2009) with surface wipes from U.S. kitchen floors. Cypermethrin on 46%.
Dimethoate	60-51-5		Widely used insecticide.
Diphenylamine	122-39-4		Used on apples pre and post-harvest.

Name	CAS Number	Alternative Names	Comments
Endosulfan Sulfate	1031-07-8		The primary breakdown product of the insecticide endosulfan.
Fenitrothion	122-14-5		Insecticide used on rice, cereals, fruits, vegetables, stored grains, cotton, to control insects in forests and for fly, mosquito, and cockroach control in public health programs.
Fipronil	120068-37-3		Insecticide. U.S. Environmental Protection Agency (EPA) and the U.S. Department of Housing and Urban Development (HUD) collected samples (in 2009) with surface wipes from U.S. kitchen floors. Fipronil on 40%.
Folpet	133-07-3		Used on berries, apples, flowers, ornamentals, fruits and vegetables, and for seed- and plant- bed treatment. Also used as a fungicide in paints and plastics, and for treatment of internal and external structural surfaces of buildings
Hexazinone	51235-04-2	Velpar	Herbicide used on grasses and broadleaf and woody plants.
Iprodione	36734-19-7	Rovral, Chipco Green	Fungicide used on fruits, vegetables and on lawns.
Methamidophos	10265-92-6	Monitor, Nitofol, Tamaron, Swipe, Nuratron, Vetaron, Filtox, Patrole, Tamanox, SRA 5172, and Tam	Used on broccoli, Brussel sprouts, cauliflower, grapes, celery, sugar beets, cotton, tobacco, rice and potatoes.
Mirex	2385-85-5		Banned by the Stockholm Convention on Persistent Organic Pollutants. Although banned still found in fat tissue (both human and in animals /fish we eat) and breast milk.
Omethoate	1113-02-6		Used to control insects and mites in horticulture and agriculture, as well as in the home garden.
Permethrin	52645-53-1		U.S. Environmental Protection Agency (EPA) and the U.S. Department of Housing and Urban Development (HUD) collected samples (in 2009) with surface wipes from U.S. kitchen floors. The most frequently detected pesticide was permethrin (89 per cent). Included in creams (Nix, Lyclar) for scabies. US military uniforms and mosquito nets may be impregnated with this. May be in head lice treatment. May be carcinogenic.
Phosmet	732-11-6		Mainly used on apple trees for control of codling moth, though it is also used on a wide range of fruit crops, ornamentals, and vines for the control of aphids, suckers, mites, and fruit flies.
Simazin	122-34-9		Herbicide used to control broad-leaved weeds and annual grasses.
Tetrachlorvinphos	22248-79-9		Organophosphate
Thiacloprid	111988-49-9	Provado Ultimate Bug Killer, Baby Bio House Plant Insecticide	An insecticide particularly for aphids and white fly. Available in products for home use.

Name	CAS Number	Alternative Names	Comments
Thiamethoxam	153719-23-4		An insecticide effective against aphids, beetles, termites, etc. Available in products for home use.

## MIXED CHEMICALS AND INHALANTS VIAL

### Found in Chemical and Inhalants Kit (product code 8009)

Name	Sources include:	Effects**
Ammonia	Household cleaners, disinfectants, deodorants, hair bleaches, permanent wave solutions, rheumatic liniments, used to make fertilizers, plastics and nylon; cigarette smoke.	Irritant to eyes, breathing passages and skin.
Bee Sting		
Bitumen	Damp proof courses, flat roofs, rust treatments, sealant, carpet tile backing, pesticide, adhesive.	Skin irritant.
Brake & Clutch Fluid		May irritate the skin.
Brush Cleaner with Xylene	Brush cleaners, damp start products sprayed on car engines; spray paints, adhesives in flooring material.	Xylene can cause irritability, tiredness, dizziness, light headedness and agitation.
Butyl	Solvent	Eye irritation, headache, dizziness and dermatitis.
Carbon Tetrachloride	Dry cleaning fluid, some old DIY products.	
Chlorine Bleach / Bleach	Bleach, antiseptics, disinfectants, tap water, swimming pool water, mold inhibitors, bleached papers.	Irritation to eyes, throat and lungs.
Coal Tar	Coal tar derivatives (some food additives, phenol, asphalt, benzene, creosote), eczema and psoriasis treatment creams, shampoo.	
Creosote	Wood preservative, cough mixtures.	Probably carcinogenic.
Crude Oil	Many plastics and chemicals are derived from crude oil.	
Dental Anesthetic		
Diesel Fumes		
Formaldehyde/ Formalin	Cavity wall insulation, printing ink, textile and fabric finishes (minimum iron etc.), chipboard, adhesives, photographic chemicals, preservatives in cosmetics and toiletries, treatments for warts and verrucae, throat lozenges, cleaning products, artificial silk, slow-release fertilizers, vaccines.	Skin irritant; a very common allergen.
General Purpose Oil		
House Dust Mite	Mainly found in bedding, carpets and upholstery.	Allergic reactions can cause eczema, asthma.
Kapok	Cushions, soft toys.	
Lanolin	Cosmetics, toiletries, soap, woolen clothes, some medicinal ointments and creams.	A very common allergen.
Latex	Protective gloves, contraceptives (condoms, diaphragm and cap), hot water bottles, baby bottle teats, shoes, mattresses, pillows, balloons, rubber bands, elastic and finger stalls.	
Lycra	Fabrics, elastic, sewing thread.	
Methylated Spirits		
Mixed Nylon	Clothing, tights and stockings, carpets and furnishings.	
Mosquito Bite		
Moss Killer with Diclorophen	Diclorophen is a moss and algae killer, control of fungi and molds on walls.	Cramps, diarrhea, skin and eye irritation.
Neoprene	Waterproof fabrics, wet suits.	



Name	Sources include:	Effects**
Paraffin/ Kerosene	Paraffin heaters, toiletries, hair creams, hand creams, Vaseline, ointment bases.	
Perfumes and Aftershaves Mix		
Petrol Fumes/ Gas Fumes (USA)		
Phenol/ Carbolic Acid	Fungicides, disinfectants, wood preservatives, synthetic fibers, vaccinations, floor leveling resins.	A common allergen.
Polyurethane	Paint, foamed plastics for insulation, cushions, mattresses and upholstery, varnish.	
Polybutylene		
Polyvinyl Chloride / PVC	Third most common plastic. Typical uses include raincoats, car/automobile interiors, furnishings (as mock leather), food wrappings (becoming less common), plastic bottles for drinks and personal care products, coatings for paper, shoe soles, plastic pipes and building materials. In hospitals also used for catheters, blood bags and tubing.	
Solid Fuel Fumes		
Stain Removers		
Turpentine	Cosmetics, polishes, varnishes, thinners, pine scented products, indigestion mixtures, irritant skin applications (rubefacient).	CNS damage, irritation of skin and mucus membranes.
Wasp Sting / Yellow Jacket Sting		
Mixed Vial of 31 Inhalant and Contact Items	Contains: acrylic, aerosol propellant, chalk, calor gas fumes, mixed carpets, cat hair, cigarette smoke, tobacco, coal tar, crude oil, diesel, diesel fumes, dog hair, ethanol, formaldehyde, granite, mixed grasses, house dust, house dust mite, mixed moss, mixed lichens, nickel, north sea gas, petrol fumes, feathers, mixed plastics, sheep's wool, solid fuel fumes, mixed washing powders.	
Colophony	A pine resin found in paper, cosmetics, varnishes, paint, polishes, fly papers, adhesive tapes, epilating waxes, solder flux, etc.	This is often included in medical tests for allergy.
Triphenyl Phosphate	A flame retardant added to many plastics such as TV's and computer monitors; when the appliance heats up as it does in use small amounts of this chemical vapourise into the air.	

\*\* The effects listed are the ones which are generally accepted to occur as a result of inappropriate or excessive exposure. Other effects can occur as a result of allergic reactions.

References:

Jane Houlton                      *Allergy Survival Guide*  
Peter Parish                        *Medicines: A Guide for Everyone*  
M. Birkin & B. Price              *C for Chemicals*  
P. Cox & P. Brusseau            *Secret Ingredients*  
J Emsley                              *The Consumer's Good Chemical Guide*

## MIXED DENTAL VIAL

### From Dental Kit (product code 8011)

Amalgam: contains mercury, copper, tin, silver and zinc  
Apexit root filling sealer  
Bite registration  
Carboxylate liquid  
Carboxylate powder  
Cavalite cavity lining  
Coltosol temporary filling  
Composite filling material  
Core material: for crowns  
Cresophene root canal antiseptic  
Crown impression putty  
Dyract compound filling  
Fissure sealant -Biz GMA  
Fluoride varnish  
Fuji II LC filling material  
Glass Ionomer cement for crowns  
I.R.M. Temporary filling  
Kalzinol temporary filling  
Ledermix cement: steroid and antibiotic  
Lining material for fillings  
Local anesthetic: citanest with octapressin  
Local anesthetic: lignospan with adrenalin  
Local anesthetic: scandonest 3% plain  
Microprime cavity lining  
Mouth wash tablet  
Orange oil  
Periodontal nosode: contains bacteria, blood, plaque and toxins from people with gingivitis and periodontal disease  
Polishing paste  
Polishing paste: Minerva  
Prime 'n' bond dentine bonding agent  
Root filling material  
Surface anesthetic  
Syntac dentine bonding agent  
Temporary cement for fittings  
Temporary dressing material  
Tubliseal root filling sealer  
Zinc oxide liquid for resin  
Zinc phosphate cement for crowns  
GC Fuji Bond LC: a commonly used dental bonding material  
GC Fuji IX GP: a composite resin used in place of amalgam  
Tetric Cream: a composite resin used in place of amalgam  
Belle Glass: used for inlays, onlays and crowns  
Cercon: core material for crowns and bridges  
Cercon S: porcelain that goes on top of DT 42 (Belle Glass)  
Cerpress: ceramic crown material without metal, also used in inlays  
Duceram Plus: porcelain for crowns  
Herculite: filling material which is very strong and used for back teeth  
Maxi Bond Metal: precious metal alloy which goes under porcelain crowns  
Presciano: crown material, contains gold but no other metals  
Solo Bond: adhesive for fillings

## MIXED PERSONAL CARE VIAL

### From Personal Care Kit (product code 8058)

Name	Description
Almond Oil (sweet)	Used as a carrier oil in aromatherapy, and in some personal care products.
Aloe Vera Gel	Used in personal care products and cosmetics; also in some creams and gels to treat eczema, burns, etc.; can be taken internally to help digestive problems.
Apricot Kernel Oil	Cheaper than almond oil, so used more often in personal care products to soften skin; used as a carrier oil in aromatherapy.
Avocado Oil	Used as a food oil and in personal care products; used as a carrier oil in aromatherapy.
Bees wax (unbleached)	Used to make fine candles, cosmetics, shoe polish and pharmaceuticals; also used to make bone wax, which is used to stop bone bleeding during surgical procedures (once applied it remains in place in the body; some people have experienced adverse reactions).
Butyl Paraben / <i>p</i> -Hydroxybenzoic acid <i>n</i> -butyl ester / Butyl 4-hydroxybenzoate	a widely used preservative in creams, cosmetics, food and beverages; typical products include hand creams, body lotions, tanning lotions, shampoos, skin cleansers, skin toners, moisturizers, hair conditioners, hair dyes, eye shadows, foundations and after-shaves.
Cocoa Butter / Theobroma Cacao	Used to make moisturizers, soaps, cosmetics and lip balms; used to make chocolate including white chocolate.
Coconut Oil / Cocos Nucifera	Used in skin moisturizers and soap; in India and Sri Lanka used to style hair; used in vegetable oil and manufacture of processed foods.
Dehydroacetic Acid	A preservative used in personal care products, medicinal creams, cosmetics and foods.
Diazolidinyl Urea	Used as a preservative in cosmetics, skin care products, shampoos and conditioners, bubble baths, baby wipes and household detergents.
Dibutyl Phthalate / Di- <i>n</i> -butyl phthalate / <i>n</i> -Butyl phthalate / DBP // Phthalic acid dibutyl ester	Used as a solvent for dyes, in cosmetics (particularly nail polish), food packaging, perfumes, skin emollients, hair spray and insect repellents; a commonly used plasticizer (makes plastics more flexible and easier to handle).
Hydroxyethylcellulose	Found in personal care products (e.g. hair conditioners, body toning creams, mascaras and shaving creams); also used in dry eye medication and vaginal creams and gels.
Imidazolidinyl Urea	A preservative found in skin, body and hair products, antiperspirants and nail polishes.
Isopropyl Myristate	Found in hand and body lotions, moisturizers, deodorants, body sprays, pre-shave lotions, mascara, after shave and medicinal creams; also used as a non-pesticide treatment for hair lice.
Jojoba Oil	Extracted from a shrub; used in hair care products, cosmetics and skin care preparations; used as a carrier oil in aromatherapy.
Methyl Paraben	A widely used preservative in creams, cosmetics, food and beverages; typical products include hand creams, body lotions, tanning lotions, shampoos, skin cleansers, skin toners, moisturizers, hair conditioners, hair dyes, eye shadows, foundations and after-shaves.

Name	Description
Nitrosamine Mix	Found in some personal care products; not intentionally added, but are formed accidentally during manufacture or storage (levels increase over time); Research shows over half personal care products and cosmetics have detectable levels; also formed when nitrates (usually from food or drinking water) react with amines naturally present in food and in the human body; also in tobacco smoke.
Octyl Dodecanol	A common ingredient in cosmetics, hair conditioners, nail care products, deodorants, vaginal creams, etc.
Oxybenzone / 2-Hydroxy-4-methoxybenzophenone	Absorbs UV rays; used in sunscreens, skin care and lip balms.
Palm Oil	Used in the manufacture of soap, cosmetics, detergents, candles and printing ink; used as a cooking oil, in baby formulas, to make margarine, and in many processed foods; used in production of biodiesel fuel.
Paraphenylenediamine / p-phenylenediamine 1,4-Benzenediamine / 1,4-Diaminobenzene / 1,4-Phenylenediamine	Widely used as a permanent hair dye (when a reaction to hair dye occurs, this is the most likely culprit); may also be found in dark colored cosmetics, temporary tattoos, photographic developer and lithography plates, photocopying and printing inks, black rubber, oils, greases and gasoline; also found in textile or fur dyes.
Poly(ethylene glycol) Distearate	Widely used to make cosmetics opaque; used to make soap and medicinal ointments.
Propyl Gallate / E310	An antioxidant used in personal care products, cosmetics, sausages, margarine, and chewing gum; used in manufacture of paper packaging that will be in contact with food.
Propyl Paraben / 4-Hydroxybenzoic acid propyl ester / Propyl 4-hydroxybenzoate	A widely used preservative in creams, cosmetics, food and beverages; typical products include hand creams, body lotions, tanning lotions, shampoos, skin cleansers, skin toners, moisturizers, hair conditioners, hair dyes, eye shadows, foundations and after-shaves.
Propylene Glycol / PG / Propan-1,2-diol / Propylenglycol	Used in the preparation of perfumes, in personal care products (e.g. cleansers skin creams, toothpastes, shampoos, hair conditioners, hair dyes), and cosmetics, and in drugs; used as a preservative in some food (e.g. ice cream and sour cream); used as an anti-freeze, a solvent and a mold inhibitor; also used in artificial smoke and fog machines.
Resorcinol / 1,3- Benzenediol / Resorcin	Used in hair dyes, anti-dandruff shampoos and sunscreens; used to treat acne and skin complaints; also used to dye fur and leather and in wood adhesives.
Shea Butter / Butyrospermium Parkii	Widely used in cosmetics as a moisturizer and an emollient; used as a cooking oil in West Africa, as well as sometimes being used in the chocolate industry as a substitute for cocoa butter.
Sodium Lauryl Sulfate / SLS / Sodium dodecyl sulfate / SDS	Used in personal care products such as toothpastes, shampoos, shaving foams and bubble baths for its thickening effect and its ability to create lather.
Stearic Acid / Octadecanoic Acid	found in personal care products (e.g. moisturizers, hand creams, body lotions, tanning lotions, cream soaps, eye shadows, mascaras, hair dyes, foundation, and shaving foams); used as a lubricant in nutritional and medicinal tablets.
(+) - $\alpha$ -Tocopherol Acetate / Vitamin E Acetate	Found in face wash creams, hair conditioners, hand creams foundation, eye shadows, lipsticks, and similar products.
Wheatgerm Oil	Used in natural personal care products, and some medicinal creams.

## MIXED FOOD ADDITIVE VIAL

### From Food Additives A and B Kits (product codes 8023 and 8024)

Name	Function	Typical Products	Comments
Acetic Acid	acidity regulator	chutney, cakes, cough tincture, rheumatic liniment, antiseptic skin applications, wart and corn ointment, fumes from silicone, sealants curing	occurs naturally in plant and animal tissues and is involved in fatty acid and carbohydrate metabolism
Aspartame	artificial sweetener	fruit squash, fizzy drinks, low-calorie foods	
Benzoic Acid	preservative	jam, beer, salad cream, margarine, manufacture of sodium benzoate, alkyd resins, plasticizers, dyestuffs, pharmaceuticals	can temporarily inhibit function of digestive enzymes; may deplete glycine levels
Butylated Hydroxyanisole/ BHA	antioxidant	confectionery, stock cubes, mayonnaise, mascara	not permitted in food intended for young children in UK
Butylated Hydroxytoluene/ BHT	antioxidant	body wash, face wash cream, perfume, blusher, mascara, shaving cream, after shave	not permitted in food for young children in UK
Caffeine		soft drinks, sports drinks, tea, coffee, cola drinks, pain relief drugs, tonics	
Carnauba Wax		confectionery, furniture polish and varnish, mascara	
Carrageenan	stabilizer	salad dressings, ice cream, cakes, toothpaste, shaving cream	
Citric Acid	acidity regulator	soft drinks, instant potato, jams, jellies, mustard, confectionery, yoghurt, cereal bars, cheese & onion rolls, hair conditioner, shampoo, body wash, baby bath, cleanser, foundation, after shave, cough mixtures, cough lozenges, descaling cleaners	Occurs naturally in citrus fruit and other ripe fruit, soft drinks. Manufactured by the action of <i>Aspergillus Niger</i> molds on sugar
Guar Gum		ice cream, salad cream, mayonnaise, milk shakes	
Gum Acacia	stabilizer	soft drinks, emulsifying and suspending agent in drugs, manufacture of plasters, as an adhesive	from acacia tree
Lactic Acid	acidulant	meat extracts, pickled onions, margarine, cheese & onion roll, cleansing lotion, toning lotion, eye gel, shampoo, pre-shave lotion, vaginal douches, wart treatments, sports drinks, a chemical intermediate, in textile finishing and in leather tanning, manufacture of a bread additive	occurs naturally in muscles during periods of physical exertion
Lactose		cow's milk, goats milk, sheep's milk, packet sauce, chocolate, antacid preparations	in milk of all animals; some people are lactose intolerant
Lecithin	antioxidant/ emulsifier	cakes, confectionery, gravy granules, cakes, margarine, cereal bars, instant powdered products	from eggs, vegetables and soya
Locust Bean Gum / Carob Gum	stabilizer	ice cream, soft cheese, sausages	
Monosodium Glutamate	flavor enhancer	processed meat products, gravy powder, stock cubes, tinned soup, packet sauce, crisps	prepared from natural or synthetic L-glutamic acid
Pectin	stabilizer	jam, jellies, biscuits, yoghurt, frozen desserts, salad dressings, dental adhesives, diarrhea preparations, cosmetics	from rind of citrus fruits and apples; naturally present in all plants
Phosphoric Acid	acidulant	soft drinks, rust remover	
Potassium Sorbate	preservative	soft drinks, cakes, ready prepared sandwiches, wine	

<b>Name</b>	<b>Function</b>	<b>Typical Products</b>	<b>Comments</b>
Saccharin	artificial sweetener	fruit squash, fizzy drinks, low-calorie foods, pot noodles, toothpaste	
Sodium Alginate	stabilizer	cakes, ice cream, cereal bars, stabilize fruit juice and foam on beer	
Sodium Benzoate	preservative	soft drinks, salad dressing, barbecue sauce, body wash, shampoo, mouth wash	
Sodium Metabisulphate	preservative	lemon juice, pickles, orange squash, carton salad, alcohol, home brewing and wine making	
Sodium Nitrite	preservative	tinned meat products.	Also dyestuffs and corrosion inhibitor in industry.
Sorbitan Monostearate	emulsifier	dried yeast, cakes, desserts, liquid tea concentrates	
Sorbitol	sweetener	medicinal syrups and cough mixtures, low-calorie foods, toothpaste, manufacture of ascorbic acid, various surface active agents, pharmaceuticals, cosmetics, adhesives, polyurethane foams, etc.	naturally present in rowan berries
Tartaric Acid	sequestrant	cakes, baking powder, jams	
Tartrazine/ FD & C Yellow 5	color	soft drinks, ice cream, confectionery, fish fingers, cakes, biscuits	prohibited in Norway and Austria
Titanium Dioxide	color	confectionery, toothpaste, sunscreen, gelatine capsules for nutritional supplements, lipstick, foundation, mascara, paint pigment, printing ink, filler for paper and plastics	
Vanillin	flavor	chocolate, cakes, desserts, yoghurt, perfume	from coniferyl alcohol
Xanthan Gum	stabilizer	soft drinks, mustard, salad dressings, mayonnaise, sauces, confectionery, hot chocolate drinks, cereal bars, moisturizer, cleansing lotion, foundation, toothpaste	

