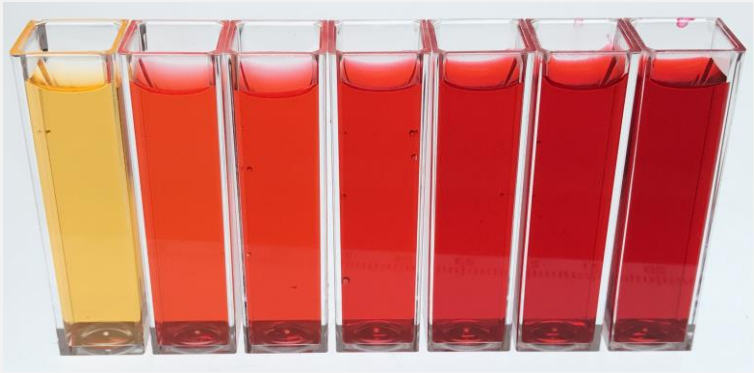
Whole blood flow equivalent

With adjustable hematocrit



0% HCT *45% HCT* *70% HCT*

Our blood flow equivalents are test liquids with flow properties identical to blood.
•TL2 matches the flow properties of blood plasma (0% hematocrit).
•TL4 matches the flow properties of whole blood with 70% hematocrit.
A test liquid with any equivalent hematocrit (0-70% HCT) can be made by mixing TL2 and TL4.

•TL3 is premixed to match the flow properties of normal whole blood (45% hematocrit).

TL2, TL3 and TL4 can be used for many applications, but are developed for early R&D phase testing and QC of medical devices where using real blood samples is unpractical.

Features

- Flow properties; Viscosity, density and surface tension identical to blood
- Non-Newtonian properties (shear thinning) matched to blood
- Colored yellow and red for intuitive identification
- Safe; non-toxic and biocompatible

Hematocrit

Any blood hematocrit between 0% and 70% can be made by mixing TL2 and TL4 according to the table on the next page. IMPORTANT NOTE: the table must be used as the TL2 and TL4 mix is non-linear in hematocrit.

Pure chemical liquids

TL2, TL3 and TL4 are pure chemical solutions, and thus does not contain blood cells, fibrinogen, proteins, virus, DNA, bacteria, urea etc. They are thus safe to use, and will not perform any biological function such as oxygen transport, clotting etc.

No blood cells

Since the blood test liquids do not contain blood cells, they cannot accurately emulate whole blood in fluidic structures comparable in size to red blood cells (<10 µm). We don't recommend use with fluidic structures with diameters smaller than 20 µm.

Optical properties

The red and yellow color is intended as a simple and intuitive identifier of the type of test liquid. The color and other optical properties are not intended to match blood.

Hematocrit [%]	TL2	TL4
0%	100,0%	0,0%
1%	99,7%	0,3%
2%	99,2%	0,8%
3%	98,6%	1,4%
4%	97,9%	2,1%
5%	97,2%	2,8%
6%	96,4%	3,6%
7%	95,5%	4,5%
8%	94,7%	5,3%
9%	93,7%	6,3%
10%	92,8%	7,2%
11%	91,8%	8,2%
12%	90,7%	9,3%
13%	89,7%	10,3%
14%	88,6%	11,4%
15%	87,5%	12,5%
16%	86,3%	13,7%
17%	85,2%	14,8%
18%	84,0%	16,0%
19%	82,8%	17,2%
20%	81,5%	18,5%
21%	80,3%	19,7%
22%	79,0%	21,0%
23%	77,7%	22,3%
24%	76,4%	23,6%
25%	75,0%	25,0%
26%	73,7%	26,3%
27%	72,3%	27,7%
28%	70,9%	29,1%
29%	69,5%	30,5%
30%	68,0%	32,0%
31%	66,6%	33,4%
32%	65,1%	34,9%
33%	63,7%	36,3%
34%	62,2%	37,8%
35%	60,7%	39,3%

Hematocrit [%]	TL2	TL4
36%	59,1%	40,9%
37%	57,6%	42,4%
38%	56,0%	44,0%
39%	54,5%	45,5%
40%	52,9%	47,1%
41%	51,3%	48,7%
42%	49,7%	50,3%
43%	48,0%	52,0%
44%	46,4%	53,6%
45%	44,7%	55,3%
46%	43,1%	56,9%
47%	41,4%	58,6%
48%	39,7%	60,3%
49%	38,0%	62,0%
50%	36,3%	63,7%
51%	34,6%	65,4%
52%	32,8%	67,2%
53%	31,1%	68,9%
54%	29,3%	70,7%
55%	27,5%	72,5%
56%	25,8%	74,2%
57%	24,0%	76,0%
58%	22,2%	77,8%
59%	20,3%	79,7%
60%	18,5%	81,5%
61%	16,7%	83,3%
62%	14,8%	85,2%
63%	13,0%	87,0%
64%	11,1%	88,9%
65%	9,2%	90,8%
66%	7,3%	92,7%
67%	5,4%	94,6%
68%	3,5%	96,5%
69%	1,6%	98,4%
70%	0,0%	100,0%

Table of the mix of TL2 and TL4 to give a specific hematocrit. The mix percentages are valid for both volume and weight.

Storage, disposal and safety

Storage

Store TL2, TL3 and TL4 upright and in tightly closed containers in a cool, dry environment away from direct sunlight at a temperature of 4-27°C (40-80°F). Shelf life is 12 months from date of manufacture. Avoid contamination of the liquid in the bottle, since there are no preservatives to prevent growth of bacteria, fungi etc.

Disposal

TL2, TL3 and TL4 may be included with other water based waste. It is the responsibility of the customer to ensure disposal is made in observance of all federal, state, and local environmental regulations.

Environmental, Health and Safety

TL2, TL3 and TL4 consist of water and approved food additives. It is safe to drink but we definitely don't recommend doing so. It is biocompatible and completely safe.

Warranty

The information in this datasheet is based on our experience and is, we believe to be reliable, but may not be complete. We make no guarantee or warranty, expressed or implied, regarding the information, use, handling, storage, or possession of this product, or the application of any process described herein or the results desired, since the conditions of use and handling of the product is beyond our control.