Detergent Assay Kit (BA0214)

Product Datasheet | SKU BA0214

Description

Detergents are surfactants that are amphiphilic, meaning that they are partly hydrophobic and partly hydrophilic. Detergents fall into three categories: anionic, cationic and non-ionic/zwitterionic. They are commonly used in household cleaning products, in gasoline as additives, and in biological reagents. Simple, direct and automation-ready procedures for measuring detergent concentration in biological samples are very desirable. This detergent assay kit is designed to measure detergent directly without any pretreatment. Above the critical micellar concentration, detergent forms micelles in solution that trap the colorimetric dye. The intensity of the colour is directly proportional to the detergent concentration in the sample.

Specifications

Detection Method	Colorimetric (OD 560 nm for Reagent A / OD 650 nm for Reagent B)
Detection Range	Tween 80: 0.012-4 mM; Tween 20: 0.06-5 mM; Triton X-100: 0.23-12 mM; Brij L23/35: 0.09-5 mM; DTAC: 0.08-2 mM; SDS: 10-25 mM
Sample Type	Purified protein samples, water and soil
Species Reactivity	All
Assay Time	Immediate (add-mix-read)
Kit Size	100 Assays
Equipment Required	Microplate reader
Storage	Shipped at room temperature. Store contents at 4 degrees C.
Shelf Life	12 months after receipt
Shipping	Room Temperature

Kit Components

Component	Quantity	Storage
Reagent A (for Cationic/Nonionic Detergents, e.g. Tween, Brij, Triton)	20 mL	4 degrees C
100 mM Triton X-100 Standard	100 uL	4 degrees C
Reagent B (for Anionic Detergents, e.g. SDS)	20 mL	4 degrees C
250 mM SDS Standard	100 uL	4 degrees C

Ordering Information

Assay Genie Cat. No.	Pack Size
BA0214	100 Assays

Assay Procedure

Note: This is a sample protocol. Protocols are batch/lot specific - always follow the instructions supplied with your kit.

1. For the Triton X-100 standard curve, dilute to 12 mM by mixing 45 uL of 100 mM Triton X-100 Standard with 330 uL of water, then dilute in water as described in the standard table; for the SDS standard curve, dilute to 25 mM by mixing 50 uL of 250 mM Standard with 450 uL of water and dilute as in the standard table.
2. Transfer 20 uL of diluted standards and samples into the wells of a clear flat-bottom plate; if the sample is coloured, transfer 20 uL of sample into two separate wells (one Sample and one Sample Blank).

3. Add 180 uL of Reagent A for cationic/nonionic detergents (e.g. Triton X-100), or 180 uL of Reagent B for anionic detergents (e.g. SDS), to all samples and standards; add 180 uL of deionised water to Sample Blank wells. Tap the plate to mix.
4. Read the optical density at 560 nm for Reagent A or 650 nm for Reagent B.
5. To construct a standard curve for other detergents, prepare at least eight dilutions above the critical micellar concentration plus a no-detergent water blank, select Reagent A for cationic/nonionic or Reagent B for anionic detergents, transfer 20 uL of standards into wells, add 180 uL of the appropriate reagent, read the OD, subtract the water blank OD and plot delta-OD against concentration; detergent standard curves are often nonlinear.

Triton X-100 Standards Dilution

No	12 mM STD	+ H2O	Vol (uL)	Triton X-100 (mM)
1	100 uL	0 uL	100	12
2	80 uL	20 uL	100	9.6
3	60 uL	40 uL	100	7.2
4	40 uL	60 uL	100	4.8
5	30 uL	70 uL	100	3.6
6	20 uL	80 uL	100	2.4
7	10 uL	90 uL	100	1.2
8	0 uL	100 uL	100	0

SDS Standards Dilution

No	25 mM STD	+ H2O	Vol (uL)	SDS (mM)
1	100 uL	0 uL	100	25.0
2	90 uL	10 uL	100	22.5
3	80 uL	20 uL	100	20.0
4	70 uL	30 uL	100	17.5
5	60 uL	40 uL	100	15.0
6	50 uL	50 uL	100	12.5
7	40 uL	60 uL	100	10.0
8	0 uL	100 uL	100	0

Calculation

Subtract the blank OD (water) from the standard OD values and plot the OD against standard concentrations. Use the standard curve to determine the sample detergent concentration. If the calculated detergent is above the standard curve, dilute the sample in water and rerun the assay. Conversions: 1 mM Triton X-100 equals 0.0625% or 625 ppm; 1 mM SDS equals 0.0288% or 288 ppm.

Notes

- Bile acids such as sodium deoxycholate interfere with this assay and cause high levels of cloudiness; they cannot be used in this assay.
- The sample should be clear and free of particulates or turbidity. If the sample is colourless, no Sample Blank is needed.
- The SDS standard can form a precipitate when cold; to remove it, gently heat the standard for several minutes and vortex to mix thoroughly. Bring the reagents to room temperature and shake briefly prior to assay.
- Samples that have been tested with this kit include various hand soaps, dish detergents, powder clothing detergents and white blood cell lysing buffers.
- Reagents are for research use only. Refer to the MSDS for detailed safety information.