Product Testing Solutions

Artificial Perspiration

Artificial Eccrine Perspiration

The Artificial Eccrine Perspiration we offer is a ready-to-use solution and the closest mimic to true human eccrine sweat. It consists of 19 amino acids, the seven most abundant minerals, and the four most abundant metabolites at a pH of 4.5. All concentrations closely match experimentally determined values for adult human eccrine sweat. Custom formulations are available on request.

Artificial Eccrine Perspiration List of Ingredients			
Metabolites	Uric Acid	Urea	
	Lactic Acid	Ammonia	
Minerals	Sodium	Iron	
	Calcium	Copper	Sulfate
	Magnesium	Potassium	Nitrate
	Zinc	Chloride	
Amino Acids	Glycine	L-Histidine	L-Serine (Largest amount)
	L-Alanine	L-Isoleucine	L-Threonine
	L-Arginine	L-Leucine	L-Tyrosine
	L-Asparagine	L-Lysine	L-Valine
	L-Aspartic acid	L-Methionine	Taurine
	L-Citrulline	L-Ornithine	
	L-Glutamic acid	L-Phenylalanine	

Pickering Laboratories is pleased to offer our Artificial Eccrine Perspiration in a larger format – in addition to the 200 mL and 5 mL quantities, we now offer our stabilized formulation in a 950 mL volume, packaged in a 1 L plastic eluant bottle.

Storage and Handling

The stabilized solution is preserved with a fungicide and bactericide. The non-stabilized product is kept frozen.

Artificial Eccrine Perspiration	
Catalog No.	**Description**
1700-0022	Artificial Eccrine Perspiration – Not Stabilized, each (200 mL/bottle)
1700-0020	Artificial Eccrine Perspiration – Stabilized, each (200 mL/bottle)
1700-0023	Artificial Eccrine Perspiration – Custom pH, Not Stabilized, each (200 mL /bottle)
1700-0021	Artificial Eccrine Perspiration – Custom pH, Stabilized, each (200 mL/bottle)
1700-0024	Artificial Eccrine Perspiration – Stabilized, each (5 mL/bottle)
1700-0531	Artificial Eccrine Perspiration – Stabilized, each (950 mL/bottle)

Pickering Laboratories created our Artificial Eccrine Perspiration to universally standardize across all industries; it is the only formula that can satisfy all test challenges. Although it is the most complete formulation available, we also offer industry-specific artificial perspiration formulations.

Artificial Sebum

Sebum is an oily secretion produced by sebaceous glands, which spreads over the hair and skin for waterproofing purposes. Pickering Laboratories manufactures an artificial sebum formulation according to ASTM designation D4265-14 or D4265-98. It is ready-to-use and provides the reliability, reproducibility and convenience needed for testing.

D4265-14 Artificial Sebum	
Catalog No.	**Description**
1700-0700	Artificial Sebum, ASTM D4265-14, Not Stabilized, each (25 g/bottle)
1700-0702	Artificial Sebum, ASTM D4265-14, Not Stabilized, each (200 g/bottle)

Eccrine Perspiration-Sebum Emulsion

Inspired by the ASTM D4265-98 method for staining, Eccrine Perspiration is emulsified with Artificial Sebum. Prepared without dust/dirt for a more universal application, this emulsion mimics non-exercise induced skin surface film liquids (SSFL). As SSFL, it can be used to test any topical use product or the stability of any article that will come in contact with human sweat. This product requires refrigeration to remain in solution and prevent rancidity.

Eccrine Perspiration-Sebum Emulsion	
Catalog No.	**Description**
1700-0547	Artificial Eccrine Sweat-Sebum Emulsion, each (250 mL/bottle)
1700-0549	Artificial Eccrine Sweat-Sebum Emulsion, each (950 mL/bottle)

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Artificial Apocrine Perspiration

Apocrine sweat is secreted by apocrine glands located in the areas of the body with an abundance of hair follicles such as the scalp, armpits and groins. Apocrine sweat is initially sterile and odorless but when acted upon by bacteria, it forms odorous compounds. Artificial Apocrine Perspiration was developed to mimic the composition of human apocrine sweat and contains several volatile fatty acids that are responsible for the unpleasant odor associated with it.

The ready-to-use solution is stored frozen and could be used for testing that requires the presence of malodor. It also could be used to culture bacteria that are commonly present on human skin.

Artificial Apocrine Perspiration List of Ingredients			
Metabolites	Urea	Citric Acid	Butyric Acid
	Ammonia	2-hydroxybuteric Acid	i-Valeric Acid
	Lactic Acid	3-hydroxybuteric Acid	
	Formic Acid	a-hydroxy-isobutyric Acid	
Sugars	Glucose		
Amino Acids	Alanine	Aspartic Acid	Citruline
	Glutamic Acid	Glutamine	Glycine
	Isoleucine	Leucine	Lysine Monohydrochloride
	Phenylalanine	Proline	Serine
	Threonine	Tryptophan	Tyrosine
	Valine	Creatine	
Minerals	Sodium	Iron	Nitrate
	Calcium	Copper	Sulfate
	Magnesium	Potassium	
	Zinc	Chloride	
Free Fatty Acids	Palmitic Acid	Stearic Acid	Oleic Acid
	Linoleic Acid		
Other Components	Triglycerides of Fatty Acids	Cholesterol	Squalene
	Wax Esters		

Artificial Apocrine Perspiration	
Catalog No.	**Description**
1700-0556	Artificial Apocrine Perspiration, each (250 mL/bottle)

AATCC Test Method 15 Artificial Perspiration

Colorfastness to Perspiration for Fabric

This ready-to-use solution is used to determine the fastness of colored textiles to the effects of acid perspiration. The non-stabilized formulation at pH 4.3 is kept frozen.

(Custom pH and stabilized versions available)

AATCC Test Method 15 Artificial Perspiration	
Catalog No.	**Description**
1700-0012	Artificial Perspiration, AATCC TM 15, Not Stabilized, each (200 mL/bottle)
1700-0015	Artificial Perspiration, AATCC TM 15, Stabilized, each (200 mL/bottle)
1700-0527	Artificial Perspiration, AATCC TM 15, Custom pH, Not Stabilized, each (200 mL /bottle)
1700-0528	Artificial Perspiration, AATCC TM 15, Custom pH, Stabilized, each (200 mL /bottle)
1700-0541	Artificial Perspiration, AATCC TM 15, Stabilized, case of 4 (950 mL/bottle)
1700-0555	Artificial Perspiration, AATCC TM 15, Stabilized, (19.8 L Carboy)

ANSI-BHMA A156.18 Artificial Perspiration

For Testing Builders Hardware and Finishes

This ready-to-use solution is used in the test method specified by the builder's hardware association

(Custom pH version available)

ANSI-BHMA A156.189 Artificial Perspiration	
Catalog No.	**Description**
1700-0504	Artificial Perspiration, ANSI-BHMA A156.18, Not Stabilized, each (200 mL /bottle)
1700-0512	Artificial Perspiration, ANSI-BHMA A156.18, Custom pH, Not Stabilized, each (200 mL/bottle)

BS EN 1811:2011 Artificial Perspiration

For Release of Nickel

This ready-to-use solution is used in the test method for release of Nickel from all post assembles which are inserted into pierced parts of the human body and articles intended to come into direct and prolonged contact with skin. The non-stabilized version is kept frozen.

This formulation is also chemically equivalent to method DIN 53160-22010-10 with the exception of titration by Sodium Hydroxide. Method DIN 53160 is used to determine fabric colorfastness to perspiration.

(Custom pH and stabilized versions available)

BS EN 1811:2011 Artificial Perspiration	
Catalog No.	**Description**
1700-0009	Artificial Perspiration, BS EN 1811:2011, Not Stabilized, each (200 mL/bottle)
1700-0506	Artificial Perspiration, BS EN 1811:2011, Stabilized, each (200 mL/bottle)
1700-0521	Artificial Perspiration, BS EN 1811:2011, Custom pH, Not Stabilized, each (200 mL /bottle)
1700-0515	Artificial Perspiration, BS EN 1811:2011, Custom pH, Stabilized, each (200 mL /bottle)
1700-0566	Artificial Perspiration, BS EN 1811:2011, Stabilized, (19.8 L Carboy)

DIN-EN/IEC 60068-2-70 Artificial Perspiration

For Testing Resistance of Lettering & Markings to Abrasion

This ready-to-use solution is intended for testing of resistance of lettering and markings to abrasion. Non-stabilized version is kept frozen.

DIN-EN/IEC 60068-2-70 Artificial Perspiration	
Catalog No.	**Description**
1700-0542	DIN-EN/IEC 60068-2-70 Artificial Perspiration, Not Stabilized, each (200 mL /bottle)
1700-0543	DIN-EN/IEC 60068-2-70 Artificial Perspiration, Stabilized, each (200 mL /bottle)

GMW14334 Artificial Perspiration

Tests the chemical resistance of automotive trim materials and components. Acid and alkaline perspiration solutions are formulated according to test procedure GMW14334.

GMW14334 Artificial Perspiration	
Catalog No.	**Description**
1700-0533	GMW14334 Artificial Perspiration, Acidic, each (200 mL /bottle)
1700-0534	GMW14334 Artificial Perspiration, 2-Part Alkaline, each (200 mL /bottle)

ISO 105-B07 and ISO 105-E04 Artificial Perspiration

Colorfastness to Light for Fabric

These are ready-to-use solutions that are used to test the colorfastness to light of a fabric saturated with either the acidic or alkaline solution. The pH of the acidic solution is 5.5 and that of the alkaline solution is 8.0. The non-stabilized product is kept frozen.

(Custom pH and stabilized versions available)

ISO 105-B07 and ISO 105-E04 Artificial Perspiration	
Catalog No.	**Description**
1700-0010	Artificial Perspiration, ISO 105-B07/105-E04, Acidic, Not Stabilized, each (200 mL /bottle)
1700-0507	Artificial Perspiration, ISO 105-B07/105-E04, Acidic, Stabilized, each (200 mL /bottle)
1700-0516	Artificial Perspiration, ISO 105-B07/105-E04, Acidic, Custom pH, Not Stabilized, each (200 mL/bottle)
1700-0522	Artificial Perspiration, ISO 105-B07/105-E04, Acidic, Custom pH, Stabilized, each (200 mL/bottle)
1700-0011	Artificial Perspiration, ISO 105-B07/105-E04, Alkaline, Not Stabilized, each (200 mL /bottle)
1700-0508	Artificial Perspiration, ISO 105-B07/105-E04, Alkaline, Stabilized, each (200 mL /bottle)
1700-0517	Artificial Perspiration, ISO 105-B07/105-E04, Alkaline, Custom pH, Not Stabilized, each (200 mL/bottle)
1700-0523	Artificial Perspiration, ISO 105-B07/105-E04, Alkaline, Custom pH, Stabilized, each (200 mL/bottle)

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ISO 11641 Artificial Perspiration

Colorfastness to Perspiration for Leather

This ready-to-use solution is used to determine the fastness of leather to perspiration. The non-stabilized formulation at pH 8.0 and is kept frozen.

(Custom pH and stabilized versions available)

ISO 11641 Artificial Perspiration	
Catalog No.	**Description**
1700-0013	Artificial Perspiration, ISO 11641, Not Stabilized, each (200 mL/bottle)
1700-0509	Artificial Perspiration, ISO 11641, Stabilized, each (200 mL/bottle)
1700-0518	Artificial Perspiration, ISO 11641, Custom pH, Not Stabilized, each (200 mL /bottle)
1700-0524	Artificial Perspiration, ISO 11641, Custom pH, Stabilized, each (200 mL /bottle)

ISO 12870 Artificial Perspiration

Ophthalmic Optics

This ready-to-use solution is used to determine the effect of sweat on ophthalmic optics and spectacle frames. The non-stabilized formulation is kept frozen.

(Custom pH and stabilized versions available)

ISO 12870 Artificial Perspiration	
Catalog No.	**Description**
1700-0014	Artificial Perspiration, ISO 12870, Not Stabilized, each (200 mL/bottle)
1700-0510	Artificial Perspiration, ISO 12870, Stabilized, each (200 mL/bottle)
1700-0519	Artificial Perspiration, ISO 12870, Custom pH, Not Stabilized, each (200 mL /bottle)
1700-0525	Artificial Perspiration, ISO 12870, Custom pH, Stabilized, each (200 mL /bottle)

ISO 3160 Artificial Perspiration

Corrosion Resistance for Alloys

This is a ready-to-use solution that is used to determine corrosion resistance. The non-stabilized formulation is at pH 4.7 and is kept frozen.

(Custom pH and stabilized versions available)

ISO 3160 Artificial Perspiration	
Catalog No.	**Description**
1700-0026	Artificial Perspiration, ISO 3160, Not Stabilized, each (200 mL/bottle)
1700-0511	Artificial Perspiration, ISO 3160, Stabilized, each (200 mL/bottle)
1700-0520	Artificial Perspiration, ISO 3160, Custom pH, Not Stabilized, each (200 mL /bottle)
1700-0526	Artificial Perspiration, ISO 3160, Custom pH, Stabilized, each (200 mL/bottle)
1700-0532	Artificial Perspiration, ISO 3160, Stabilized, each (950 mL /bottle)
1700-0537	Artificial Perspiration, ISO 3160 with added Pyruvic Acid, buffered, Stabilized, each (200 mL/bottle)
1700-0545	Artificial Perspiration, ISO 3160, Custom PH, Stabilized, each (950 mL /bottle)
1700-0557	Artificial Perspiration, ISO 3160, Stabilized, (19.8 L Carboy)

ASTM D2322 Artificial Perspiration

Resistance of Shoe Upper Leather to Artificial Perspiration

This artificial perspiration formulation is specific for breakdown of leather and is used to assess resistance to grain cracking and area loss of shoe upper. The non-stabilized solution has pH 7.5 and should be stored frozen.

(Custom pH and stabilized versions available)

ASTM D2322 Artificial Perspiration	
Catalog No.	**Description**
1700-0548	ASTM D2322-00 Artificial Perspiration, each (200 mL/bottle)
1700-0550	ASTM D2322-00 Artificial Perspiration, Stabilized, each (200 mL/bottle)