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- ASTM現行標準(Standards): 13,355+ 篇
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- 通用工業產品、特殊化學製品和消耗材料



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- 超過13,355份現行(Active)的技術標準。
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- 強大的關鍵字或編號搜索。PDF或HTML格式的全文標準格式。



# 標準層次 國際標準、國家標準、團體標準

- **團體標準**：美國電子電機工程師協會標準 -- IEEE

美國材料試驗協會標準-ASTM。美國自動車工程師協會標準-SAE。

- **國家標準**：

美國國家標準-ANSI。英國國家標準-BSI。中國國家標準-CNS。德國國家標準- DIN。

- **國際標準**：國際標準組織 – ISO。國際電工委員會 – IEC。國際電信聯盟 – ITU。



# 標準型式

試驗方法(Test Method)	對產生試驗結果的材料、產品、系統或服務的一個或多個性質特徵或性能進行辨別、測量和評估的一個確定的過程。
標準規範(Standard Specification)	材料、產品、系統或服務滿足一套要求的精確說明，包括如何滿足每項要求的確定程式。
標準規程(Practice)	執行一個或多個不產生試驗結果的特定操作或功能的確定過程
標準術語(Terminology)	由術語、術語定義、術語描述、符號說明、縮寫等組成的檔案
標準指南(Guidance)	不推薦特定行動過程的一系列選擇或說明。
標準分類(Standard Classification)	按照相同特性將材料、產品、系統或服務系統分組。



# ASTM COMPASS-數位圖書館



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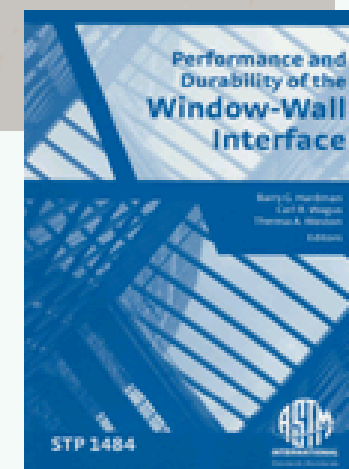
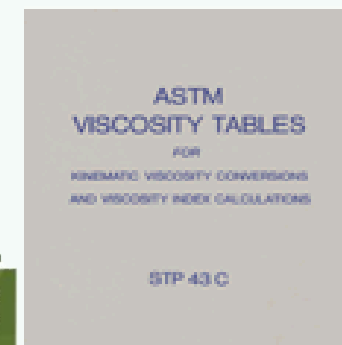
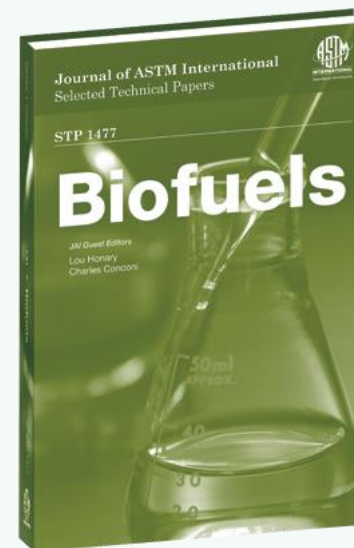
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# 專業技術報告 SYMPOSIA PAPERS & STPS

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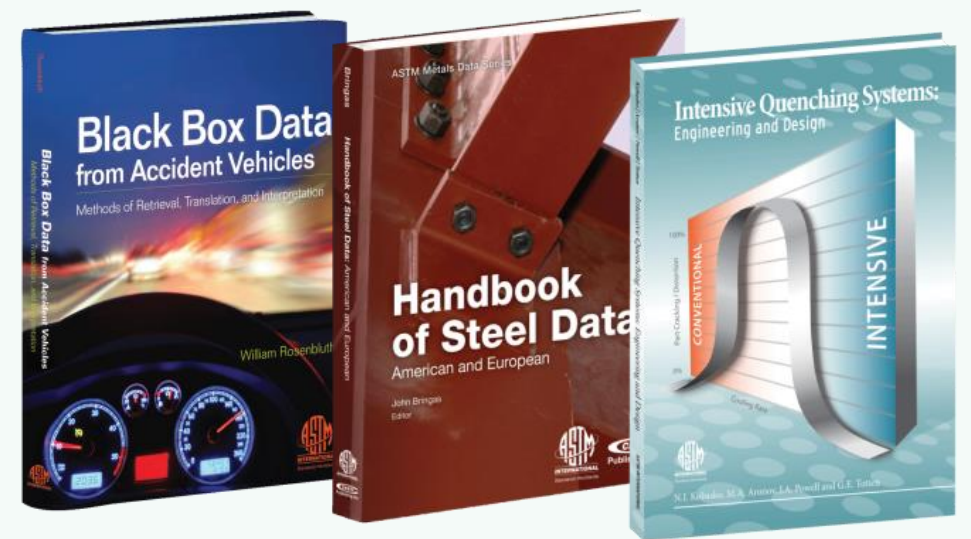
# 期刊 JOURNALS

- ASTM國際期刊(JAI) 2004~至今
- 測試與評估雜誌(JTE) 1973~至今
- 岩土技術測試雜誌(GTJ) 1978~至今
- 複合材料技術與研究雜誌(JCTR) 1978~2003
- 水泥、混泥土與混合物(JCCA) 1979~2004
- 法醫學雜誌(JFS) 1972-2005
- ➔ 土木工程材料發展(ACEM) **NEW!**
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- 對於石油、材料科學、能源、環境、土木建築、金屬、油漆、塑膠等領域的研究者，ASTM標準是必備的參考資料。
- 標準對於業界有其重要性，學生可在畢業就業之前，熟悉標準規範，事先認識了解，幫助快速融入職場。



# 落實標準觀念-從高等教育開始



## 石化管線怎麼查

### 一般檢查

一天一次，訪查有無外力造成管線損傷。

### 專業檢查

1、陰極防蝕檢查，每三月一次，檢查防蝕系統是否運作正常。

2、緊密電位量測，數年一次，檢查管線的陰極防蝕是否對外物產生迷失電流或受到外來迷失電流之干擾。

### 其餘專業檢查

迷失電流檢查、極化電位量測、防蝕干擾檢查、智慧型通管器檢查等。

資料來源：中油

聯合晚報

### 榮化管線23.2公里



### 高雄市中心地下16條石化管線



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## Backfile



Journal of ASTM International (JAI) 2004-2012 Backfile



Cement, Concrete and Aggregates (CCA) 1979-2004 Backfile



Journal of Forensic Sciences (JOF) 1972-2005 Backfile



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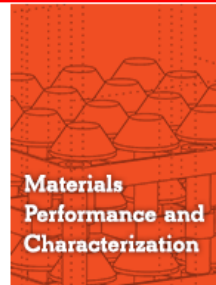
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# ASTM COMPASS – JOURNAL 期刊文章

Alena Mikhaylova<sup>1</sup> and Ali Abolmaali<sup>2</sup>

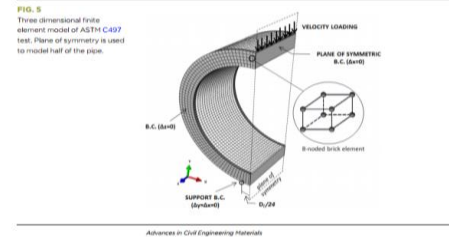
## Structural Behavior of Novel Steel-Fiber Materials in Concrete Pipes (ASTM C1765)

### Reference

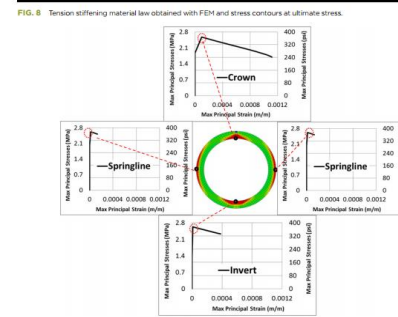
Mikhaylova, Alena and Abolmaali, Ali, "Structural Behavior of Novel Steel-Fiber Materials in Concrete Pipes (ASTM C1765)," *Advances in Civil Engineering Materials*, Vol. 3, No. 1, 2014, pp. 526-539, doi:10.1520/ACEM20130125. ISSN 2165-3984

### ABSTRACT

Steel fiber reinforced concrete pipes (SFRCPC) were introduced to the U.S. concrete pipe manufacturers for the first time as an alternative to conventional reinforced concrete pipes (RCP). Over 150 full-scale tests on SFRCPCs of different sizes and fiber dosages were conducted to document their structural behavior. The load–deformation plots and crack pattern formations for both SFRCPC and RCP were compared and are presented herein. Direct tension and ASTM C1609/C1609M-12 "Standard Test Method for Flexural Performance of Fiber-Reinforced Concrete (Using Beam With Third-Point Loading)" tests were performed on fiber-concrete mix designs to identify their material constitutive relations for different fiber dosages. A non-linear, three-dimensional finite element model of the pipe was developed and verified against experimental results. To obtain tension stiffening material law for SFRCPC with different fiber volume fraction dosages, the verified FEM, coupled with an iterative process, was used to mimic the experimentally obtained load–deformation relationships. A performance-based ASTM C1765-13 "Standard Specification for Steel Fiber Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe" was developed for SFRCPC for the first time in the U.S. as the result of this study. This article presents the philosophy of the new specification in detail and compares it with the ASTM specification for conventional RCP.



Simulation, The Univ. of Texas at Arlington, 436 Yates Street, Arlington, TX 76019, e-mail: alena.mikhaylova@ut Arlington, TX 76019, e-mail: alena.mikhaylova@ut



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Geotechnical Testing Journal (GTJ)



## Structural Behavior of Novel Steel-Fiber Materials in Concrete Pipes (ASTM C1765)

Journal Paper

Mikhaylova A., Abolmaali A.

September 2014 Volume 3, Issue 1 ACEM20130125

Steel fiber reinforced concrete pipes (SFRCPC) were introduced to the U.S. concrete pipe manufacturers for the first time as an alternative to conventional reinforced concrete pipes (RCP). Over 150 full-scale tests on SFRCPCs of different sizes and fiber dosages were conducted to document their structural behavior. The load–deformation plots and crack pattern formations for both SFRCPC and RCP ... More

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## An Experimental Study on Bond Strength of Reinforcing Steel in High-Volume Fly-Ash Concrete

Journal Paper

Looney T., Arezoumandi M., Volz J., Myers J.

November 2012 Volume 1, Issue 1 ACEM20120026

The production of Portland cement—the key ingredient in concrete—generates a significant amount of carbon dioxide. However, because of its incredible versatility, availability, and relatively low cost, concrete is the most consumed manmade material on the planet. One method of reducing concrete's contribution to greenhouse gas emissions is the use of fly ash to replace a significant ... More

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Result Type:  Standards (8,368)

**ASTM F2678-16 Standard Practice for Preparing Panel Underlayments, Thick Poured Gypsum Concrete Underlayments, Thick Poured Lightweight Cellular Concrete Underlayments, and Concrete Subfloors with Underlayment Patching Compounds to Receive Resilient Flooring**

Active Standard (Latest Version)

4.1 This practice provides minimum recommendations for preparing and smoothing panel underlayments, thick... More

Developed by Subcommittee F06.40 | Book of Standards Volume: 15.04

Historical Versions - previous version(s) of standard

**Other Searches:** Cellular Light-Weight Concrete • Concrete • Flooring And Floor Covering Systems • Flooring • More...

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**ASTM C174/C174M-16 Standard Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores**

Active Standard (Latest Version)

4.1 This test method is used to determine the compliance of concrete construction with design specificati... More

Developed by Subcommittee C09.61 | Book of Standards Volume: 04.02

Historical Versions - previous version(s) of standard

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# 檢索結果頁面-基本檢索

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## ASTM Active Standards 現行標準



### ASTM C125-15b Standard Terminology Relating to Concrete and Concrete Aggregates

Active Standard (Latest Version)

1.1 This standard is a compilation of definitions of terms as they are used in standards under the jurisdiction of Committee C09.

1.2 Other terminology under the jurisdiction of Committee C09 is included in two specialized standards. Terms relating to constituents of concrete aggregates are defined in Descriptive Nomenclature C294. Terms relating to constituents of aggregates for radiation-shielding concrete are defined in Descriptive Nomenclature C638.

1.3 Related terminology for hydraulic cement is included in Terminology C219. Additionally, the American Concrete Institute (ACI) has a standard terminology for the concrete industry.<sup>2</sup> In the event of conflict between definitions in Terminology C125 and definitions in the ACI standard terminology or in Terminology C219, definitions in Terminology C125 shall govern for Committee C09 standards.

1.4 When a term is used in an ASTM standard for which Committee C09 is responsible, it is included herein only if used in more than one Committee C09 standard.

NOTE 1: The subcommittee responsible for this standard will review definitions on a five-year basis to determine if the definition is still appropriate as stated. Revisions will be made when determined necessary. The year shown in parentheses at the end of a definition indicates the year the definition or revision to the definition was approved. A letter R and a year indicate when the definition was reviewed. No date indicates the term has not yet been reviewed.

Less

Developed by Subcommittee C09.91 | Book of Standards Volume: 04.02

Historical Versions - previous version(s) of standard

#### Other Searches:

Aggregates • **Concrete** • Hydraulic Cement • ICS 91.100.30 (**Concrete** And **Concrete** Products) • UNSPSC 30111800(Aggregates) • UNSPSC 3011600(Cement And Lime)

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Printer Friendly with Annotations	-	<input type="button" value="PRINT STANDARD"/>

Link Here

Link to Active (This link will always route to the current Active version of the standard.)

DESIGNATION: C125 - 15b

### Standard Terminology Relating to Concrete and Concrete Aggregates<sup>1</sup>

Active Standard ASTM C125 | Developed by Subcommittee: [C09.91](#)  
Book of Standards Volume: [04.02](#)



This standard is issued under the fixed designation C125; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the U.S. Department of Defense.*

In this standard:

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HISTORICAL VERSION(S):

**C125 - 15a** Standard Terminology Relating to Concrete and Concrete Aggregates

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# 檢索結果頁面-進階檢索

## Potential Application of ASTM C1701 for Evaluating Surface Infiltration of Permeable Interlocking Concrete Pavements

Symposium Paper



November 2012 STP104560

專業技術報告的文章名稱 與 出版時間。

As a sister sustainable pavement to pervious concrete, permeable interlocking concrete pavement (PICP) has seen increased use for stormwater management and low impact development. Surface infiltration is a key performance indicator for both pavement types. This paper provides a brief background of the development of test methods for measuring the surface infiltration of permeable pavements. ... More

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Symposium Paper

November 2012 STP104555

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One of the key concerns with pervious concrete is the material's surface durability, specifically, its resistance to raveling. As the market for pervious concrete grew, this was one of the hurdles in the way of broader adoption of the technology. This paper documents the process of developing a test method to determine the potential raveling resistance of a pervious concrete mixture. The ... More

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# 檢索結果頁面

100 STP 1551 ON PERVIOUS CONCRETE

TABLE 1—PICP test results for a building supply parking lot in Lindenhurst, NY, in meters per second (inches per hour).

Date	Test Location 1	Test Location 2	Test Location 3
Oct. 21, 2010	$1.5 \times 10^{-3}$ (206)	$2.1 \times 10^{-3}$ (302)	$2.5 \times 10^{-3}$ (350)
	$1.3 \times 10^{-3}$ (182)	$2.5 \times 10^{-3}$ (350)	$2.2 \times 10^{-3}$ (311)
Apr. 4, 2011	$2.3 \times 10^{-3}$ (321)	$2.4 \times 10^{-3}$ (341)	$2.4 \times 10^{-3}$ (336)
	$2.4 \times 10^{-3}$ (340)	$2.3 \times 10^{-3}$ (327)	$2.5 \times 10^{-3}$ (350)
Nov. 2, 2011	$1.8 \times 10^{-3}$ (250)	$1.6 \times 10^{-3}$ (229)	$1.7 \times 10^{-3}$ (240)
	$1.7 \times 10^{-3}$ (243)	$1.6 \times 10^{-3}$ (232)	$1.7 \times 10^{-3}$ (238)

Both test locations in Lindenhurst used plumber's putty to seal the metal ring against the paving. At both sites, the jointing stones were removed between the joints under the ring and filled with plumber's putty to further direct the water downward. Removal of the jointing stones can be done with a putty knife and a screwdriver. A key consideration in placing the ring is to frame the paver joint pattern within the ring. This framed area should represent the percentage of open area in the overall surface to best characterize surface infiltration. In addition to characterizing the overall permeable jointing pattern, this location can reduce the time and effort required in order to remove jointing stones and fill the joints with plumber's putty.

After pre-wetting, the ASTM C1701 test method was conducted three times over the first 11 months of service, which resulted in an average infiltration rate of  $2.025 \times 10^{-3}$  m/s, or 287 in./h. Table 1 provides the test data for three test locations.

Another test using ASTM C1701 was conducted at the  $\sim 600$  m<sup>2</sup> ( $\sim 600$  ft<sup>2</sup>) PICP parking lot of a public library in Lindenhurst, NY. The paving units were 200 mm  $\times$  200 mm  $\times$  80 mm (8 in.  $\times$  8 in.  $\times$  3.125 in.) thick with 13 mm (0.5 in.) joints filled with ASTM No. 8 stone. The paving units and jointing material were installed over 40 mm (1.5 in.) thick ASTM No. 8 bedding stone. This was placed over a 100 mm (4 in.) thick ASTM No. 57 base and a 150 mm (6 in.) thick subbase of ASTM No. 3 stone over a permeable soil subgrade. Like at the site mentioned above, this PICP was constructed in lieu of a drywell drainage system and according to the same New York State design criteria. Figure 2 illustrates the test site with the ASTM C1701 test apparatus.

After pre-wetting, the ASTM C1701 test was conducted in April 2011 during the first months of service and resulted in an average infiltration rate of  $3.8 \times 10^{-3}$  m/s, or 538 in./h. Table 2 provides the test data.

## U.S. EPA Experience

In the fall of 2009, the U.S. Environmental Protection Agency (EPA) opened a 110-car parking lot for staff at their Edison, NJ, National Risk Management

SMITH ET AL., doi:10.1520/STP104560



FIG. 4—Modified ASTM C1701 using neoprene seal on the porous surface at the U.S. EPA laboratories in Edison, NJ [10].

modeling clay works better than plumber's putty, as the latter material is viscous, stringy, and difficult to handle [11]. The modeling clay material creates a seal between the ring and the paving.

ASTM C1701 currently requires that the mass of infiltrated water be measured so that the value can be entered into a formula used to calculate infiltration rate. This can mean that one has to bring a scale to the site in order to weigh the before and after mass of the water usually dispensed in buckets. A bucket or other suitable container(s) with graduations to measure the mass of water could obviate the need for a scale on the site while still allowing the mass of water dispensed during the test.

## Conclusions

The most common permeable pavement surfaces are pervious concrete and porous asphalt. There are millions of square meters of each. ASTM C1701 is an inexpensive and rapid test method for measuring infiltration by simulating a small hydraulic head on the surface to those generated by intense rain storms and contributing runoff. Data from Bean et al., Lia, and Drake confirm that ASTM C1701 is suitable for testing the surface infiltration of PICP, and Bean extends its successful testing of concrete grid pavements [2,6,7,11]. Borst et al. used a modified version of ASTM C1701 to test PICP, pervious concrete, and porous asphalt as part of a nationally visible evaluation of these pavements.

In order for contractors, stormwater agencies, and project owners to understand the performance and maintenance needs of all

Pervious Concrete  
STP 1551, 2012  
Available online at www.astm.org  
DOI:10.1520/STP104560

David R. Smith,<sup>1</sup> Kevin Earley,<sup>2</sup> and Justin M. Lia<sup>3</sup>

## Potential Application of ASTM C1701 for Evaluating Surface Infiltration of Permeable Interlocking Concrete Pavements

REFERENCE: Smith, David R., Earley, Kevin, and Lia, Justin M., "Potential Application of ASTM C1701 for Evaluating Surface Infiltration of Permeable Interlocking Concrete Pavements," *Pervious Concrete* on December 4, 2011 in Tampa, FL; STP 1551, H. J. Brown and M. Offenberg, Editors, pp. 97–105, doi:10.1520/STP104560, ASTM International, West Conshohocken, PA 2012.

ABSTRACT: As a sister sustainable pavement to pervious concrete, permeable interlocking concrete pavement (PICP) has seen increased use for stormwater management and low impact development. Surface infiltration is a key performance indicator for both pavement types. This paper provides a brief background of the development of test methods for measuring the surface infiltration of permeable pavements. Among these test methods is the single ring infiltrometer method described in ASTM C1701, which was developed to test the surface infiltration of PICP, concrete grid pavements, and pervious concrete. Research literature references on surface infiltration testing at sites in Long Island, NY, confirm that ASTM C1701 is suitable for measuring the surface infiltration rate of PICP. The post-construction pavement surface infiltration results there demonstrated an average rate of  $1.4 \times 10^{-3}$  m/s (200 in./h) or greater. Test results are also referenced from U.S. Environmental Protection Agency surface infiltration testing that used a modified version of ASTM C1701 at a permeable pavement research facility in Edison, NJ, consisting of PICP, pervious concrete, and porous asphalt.

Manuscript received November 18, 2011; accepted for publication March 30, 2012; published online October 2012.

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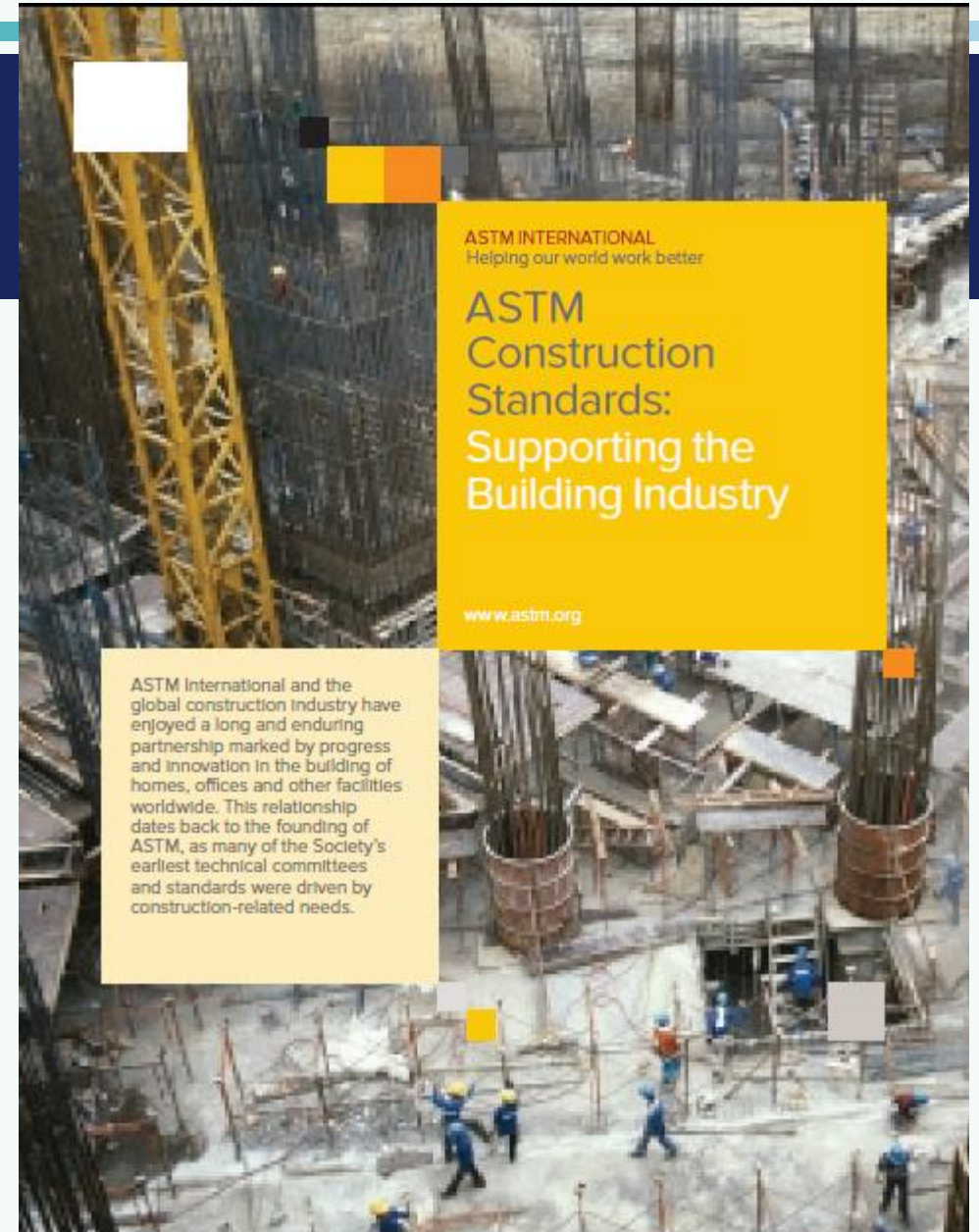
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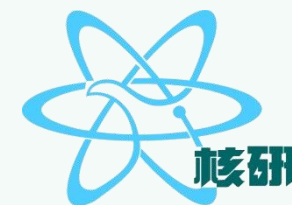
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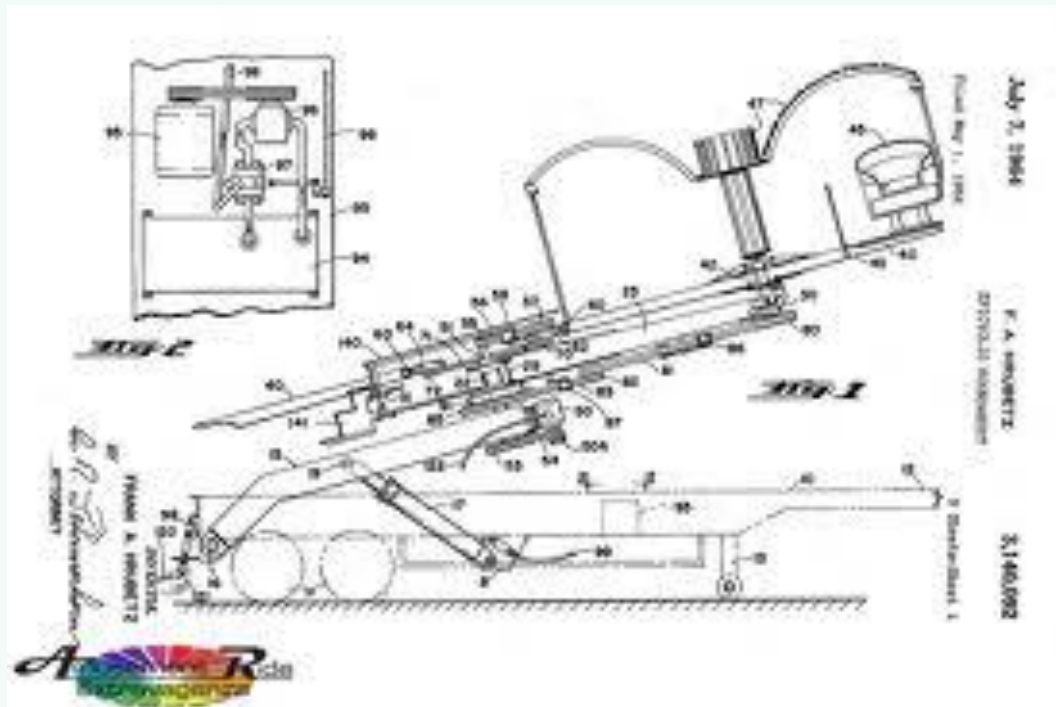


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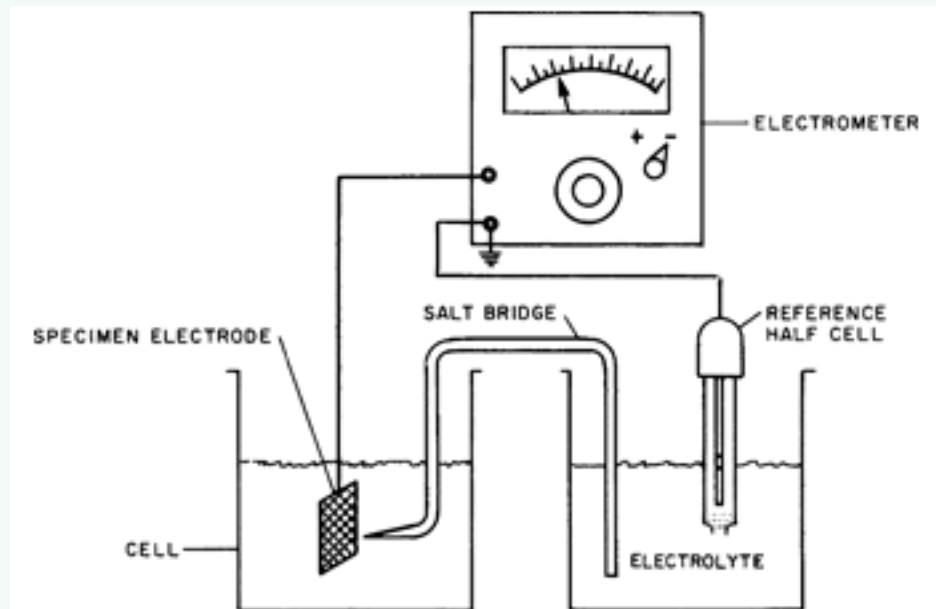


# 案例：娛樂設施設計與檢查安全標準



## 標準範例 - 金屬腐蝕電位測試

- **Active Standard ASTM G3 -14 Standard Practice for Conventions Applicable to Electrochemical Measurements in Corrosion Testing**



**FIG. 1 Schematic Diagram of an Apparatus to Measure Electrode Potential of a Specimen**

**適用領域：**金屬材料腐蝕檢測、瓦斯地下管線腐蝕檢測等等....

**適用企業：**中鋼、燁聯、燁輝、石化管線、人工牙根等等...



## 標準範例 – 材料拉伸試驗

### ■ ASTM E8/E8M-15a Standard Test Methods for Tension Testing of Metallic Materials

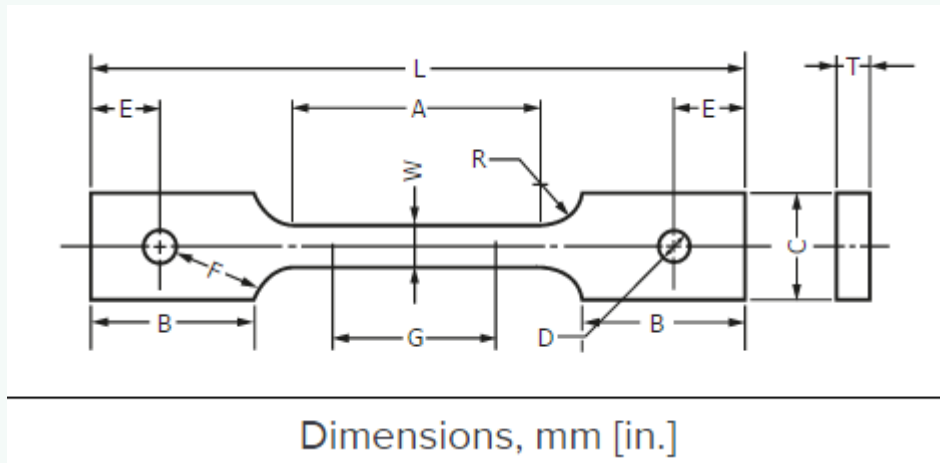


FIG. 7 Pin-Loaded Tension Test Specimen with 50-mm [2-in.] Gauge Length

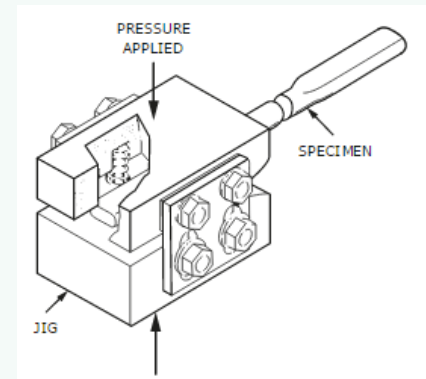


FIG. 10 Squeezing Jig for Flattening Ends of Full-Size Tension Test Specimens

**適用領域：**金屬材料、複合材料、陶瓷材料等之力學性質測試

**適用企業：**中鋼、中龍、燁輝、SGS....



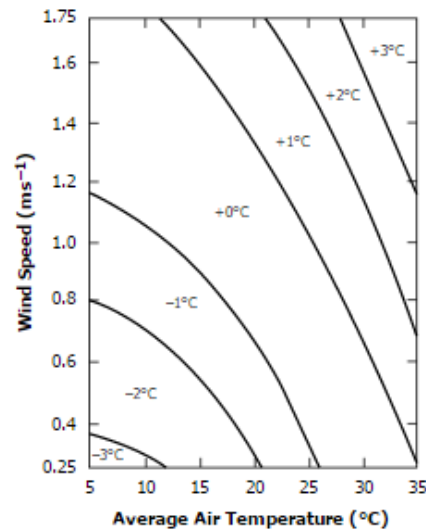
## 標準範例 – 太陽能電池模組輸出電功率

- **ASTM E1036-15 Standard Test Methods for Electrical Performance of Nonconcentrator Terrestrial Photovoltaic Modules and Arrays Using Reference Cells**



FIG. form DuPont

FIG. A1.1 NOCT Correction Factor



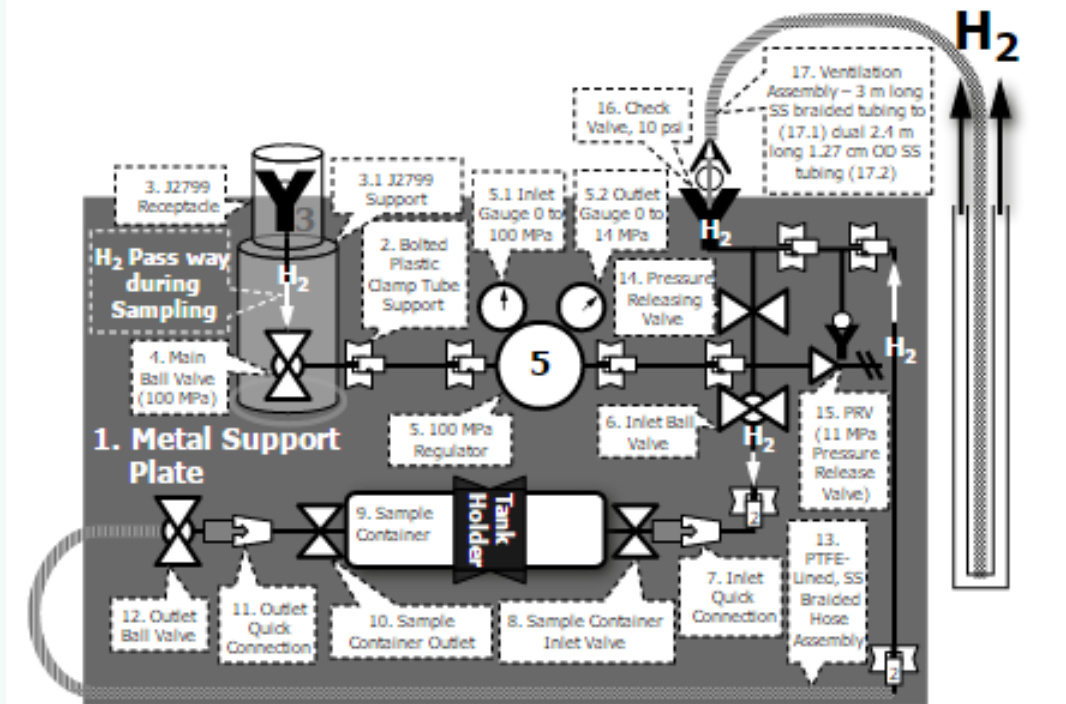
**適用領域：**太陽能電池模組之開發與測試

**適用企業：**杜邦、元晶、茂迪..

## 標準範例 – 燃料電池氫氣轉換率

### ■ ASTM D7606 - 11 Standard Practice for Sampling of High Pressure Hydrogen and Related Fuel Cell Feed Gases

FIG. 1 Hydrogen Quality Sampling Apparatus



**適用領域：**氫氣燃料電池模組之開發與測試

**適用企業：**亞太燃料、台電、台達電子、中興電工..



## 標準範例 – 混凝土用化學摻料分類

- **ASTM C94/C94M – 15 Standard Specification for Ready-Mixed Concrete**

TABLE 1 Total Air Content for Air-Entrained Concrete Exposed to Cycles of Freezing and Thawing

Exposure Condition (See Note 5)	Total Air Content, %						
	Nominal Maximum Sizes of Aggregate, in. [mm]						
	$\frac{3}{8}$ [9.5]	$\frac{1}{2}$ [12.5]	$\frac{3}{4}$ [19.0]	1 [25.0]	$1\frac{1}{2}$ [37.5]	2 [50.0]	3 [75.0]
Moderate	6.0	5.5	5.0	4.5	4.5	4.0	3.5
Severe	7.5	7.0	6.0	6.0	5.5	5.0	4.5

**適用領域：**土木工程

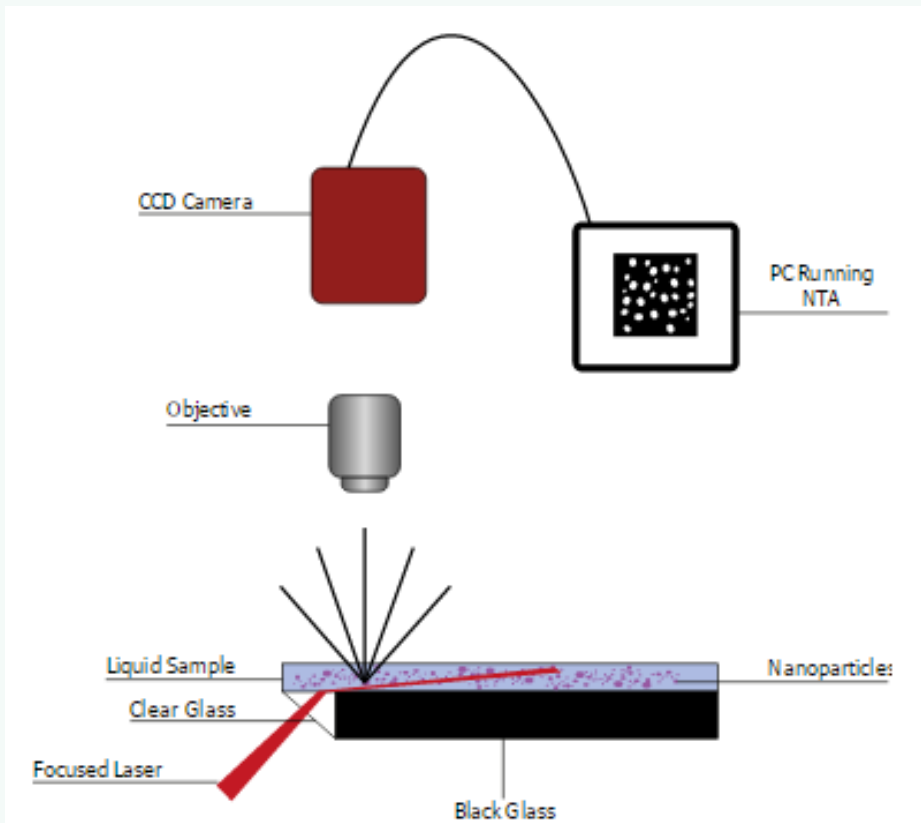
**適用企業：**土木營造  
企業-中鼎工程、台灣  
世曦工程。



## 標準範例 – 雷射光束照射懸浮奈米粒子於液體內的樣態

- **ASTM E2834 – 12 Standard Guide for Measurement of Particle Size Distribution of Nanomaterials in Suspension by Nanoparticle Tracking Analysis (NTA)**

**FIG. 2 NTA Measurement System Indicating the Main Components of a Typical Emerging-Beam Illumination Arrangement**



**適用領域：**奈米材料合成與分析、生技產品、藥品

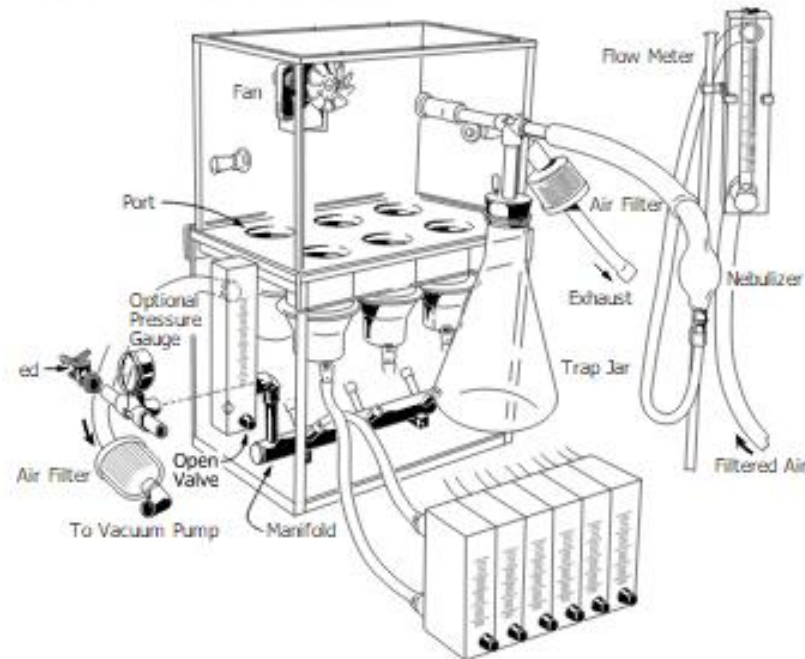
**適用企業：**奈米材料研發相關單位與公司、生技醫藥公司



## 標準範例 – 醫療器材之無菌測試

- **ASTM E2859 – 11 Standard Guide for Size Measurement of Nanoparticles Using Atomic Force Microscopy**

FIG. 1 Exposure Chamber



**適用領域：**醫療器材  
無菌測試

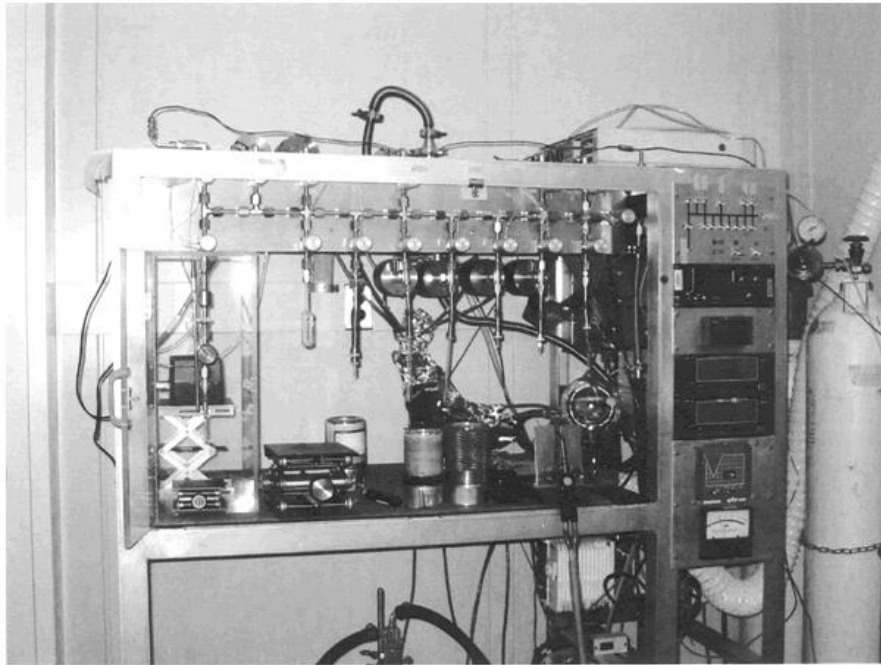
**適用企業：**醫療器材  
檢測相關企業



## 標準範例 – 生物基含量測試

- **ASTM D6866-12 Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis**

FIG. X1.1 Example of a Gas Transfer Manifold



**適用領域：**綠能工程、農業工程、再生能源、空氣汙染檢測、生物燃料等等...

**適用企業：**環境工程、農業工程相關企業



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- 降低成本、提升供應商關係
- 領導商業溝通和行銷
- 發展創新與新技術研發
- 協助達成規範和相容性的目標
- 轉化技術至市場(商業化)



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- 對於金屬、材料科學、能源、環境、土木建築、石油、油漆、塑膠等領域的研究者，標準是必備的參考資料。
- 標準對於業界有其重要性，學生可在畢業就業之前，熟悉標準規範，事先認識了解，幫助快速融入職場。





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