

**Harmonized Nonwovens Standard Procedures – Edition 2015**  
**Table of Contents**

| Description   | Method number*     | Normative References                           |
|---|--------------------|--|
| <b>1) GUIDANCE DOCUMENTS</b>  |                    |  |
| Standard Terminology Relating to the Nonwoven Industry                | NWSP 001.0.R1 (15) |  |
| Drafting a NWSP Standard Procedure                                    | NWSP 002.0.R1 (15) |  |
| Standard Atmospheres for Conditioning and/or Testing                  | NWSP 003.0.R0 (15) | ISO 139: 2005, reviewed and confirmed 2014     |
| Associations Worldwide  | NWSP 004.0.R1 (15) |  |
| Nonwoven Sampling   | NWSP 005.0.R0 (15) |  |
|   |                    |  |
| <b>2) ABSORPTION</b>  |                    |  |
| Three Standard Test Methods for Nonwoven Absorption                   | NWSP 010.1.R0 (15) | ISO 9073-6: 2000, reviewed and confirmed 2011  |
| Rate of Sorption of Wiping Materials                                  | NWSP 010.2.R1 (15) |  |
| Nonwovens Demand Absorbency   | NWSP 010.3.R0 (15) | ISO 9073-12: 2002, reviewed and confirmed 2013 |
| Evaluation of Oil and Fatty Liquids Absorption                        | NWSP 010.4.R0 (15) |  |
| <b>3) ABRASION RESISTANCE</b>   |                    |  |
| Abrasion Resistance of Nonwoven Fabrics- Inflated Diaphragm Apparatus | NWSP 020.1.R0 (15) |  |

|   |                    |  |
|---|--------------------|--|
| Abrasion Resistance of Nonwoven Fabrics- Flexing and Abrasion Method                                      | NWSP 020.2.R0 (15) |  |
| Abrasion Resistance of Nonwoven Materials (Rotary Platform, Double-Head Method)                           | NWSP 020.4.R0 (15) |  |
| Abrasion Resistance of Nonwoven Fabrics using a Nonwoven Modified Martindale Abrasion Test Method         | NWSP 020.5.R0 (15) |  |
|   |                    |  |
| <b>4) BURSTING STRENGTH</b>   |                    |  |
| Hydraulic Bursting Strength of Nonwoven Materials- Motor Driven Diaphragm Bursting Strength Tester Method | NWSP 030.1.R0 (15) |  |
| Nonwovens Burst   | NWSP 030.2.R0 (15) |  |
|   |                    |  |
| <b>5) ELECTROSTATIC PROPERTIES</b>  |                    |  |
| Surface Resistivity of Nonwoven Fabrics   | NWSP 040.1.R1 (15) |  |
| Electrostatic Decay of Nonwoven Fabrics   | NWSP 040.2.R0 (15) |  |
|   |                    |  |
| <b>6) OPTICAL PROPERTIES</b>  |                    |  |
| Optical Properties (Opacity) of Nonwoven Fabrics (INDA)   | NWSP 060.1.R0 (15) |  |
| Optical Properties (Brightness) of Nonwoven Fabrics (INDA)  | NWSP 060.2.R0 (15) |  |
| Nonwoven Brightness (EDANA)   | NWSP 060.3.R1 (15) |  |
| Nonwoven Opacity (EDANA)  | NWSP 060.4.R0 (15) |  |
|   |                    |  |

| <b>7) PERMEABILITY</b>   |                    |   |
|--|--------------------|---|
| Air Permeability of Nonwoven Materials   | NWSP 070.1.R0 (15) | ISO 9073-15: 2007, reviewed and confirmed 2011, |
| Nonwoven Coverstock Liquid Strike-Through Time Using Simulated Urine   | NWSP 070.3.R0 (15) | ISO 9073-8: 1995, reviewed and confirmed 2011   |
| Water Vapor Transmission Rates of 500 to 100,000 gm/m <sup>2</sup> /day<br>Mocon/INDA                                | NWSP 070.4.R0 (15) |   |
| Water Vapor Transmission Rate by the Principle of Measurement of Relative Humidity in a Dry cell Mocon/EDANA, Part 1 | NWSP 070.5.R0 (15) |   |
| Water Vapor Transmission Rate by the Principle of Measuring the Time to Increase Humidity Lyssy/EDANA, Part 2        | NWSP 070.6.R0 (15) |   |
| Repeated Liquid Strike-Through Time (Simulated Urine)  | NWSP 070.7.R0 (15) | ISO 9073-13: 2006, reviewed and confirmed 2009  |
| Wetback After Repeated Strike-Through Time (Simulated Urine)   | NWSP 070.8.R0 (15) | ISO 9073-14: 2006, reviewed and confirmed 2009  |
| Nonwoven Adult Incontinence Products: Rate of Acquisition and Re-Wet Test  | NWSP 070.9.R1 (15) |   |

|   |                     |  |
|---|---------------------|--|
| <b>8) REPELLENCY</b>  |                     |  |
| Surface Wetting Spray Test  | NWSP 080.1.R0 (15)  |  |
| Penetration by Water (Rain Test) for Nonwoven Fabrics                   | NWSP 080.2.R0 (15)  |  |
| Evaluation of Water Penetration (Spray Impact Test) of Nonwoven Fabrics | NWSP 080.3.R0 (15)  | ISO 9073-17: 2008 reviewed and confirmed 2011  |
| Saline Repellency Using the Automated Mason Jar End Point Detector      | NWSP 080.5.R0 (15)  |  |
| Evaluation of Water Resistance (Hydrostatic Pressure) Test              | NWSP 080.6.R0 (15)  | ISO 9073-16: 2007 reviewed and confirmed 2011  |
| Penetration by Oil (Hydrocarbon Resistance)                             | NWSP 080.7.R0 (15)  |  |
| Alcohol Repellency of Nonwoven Fabrics                                  | NWSP 080.8.R0 (15)  |  |
| Nonwoven Run Off  | NWSP 080.9.R0 (15)  | ISO 9073-11: 2002, reviewed and confirmed 2013 |
| Nonwovens Coverstock Wetback  | NWSP 080.10.R0 (15) |  |
| Nonwoven Wet Barrier Mason Jar  | NWSP 080.11.R0 (15) |  |
|   |                     |  |
| <b>9) STIFFNESS</b>   |                     |  |
| Stiffness of Nonwoven Fabrics Using the Cantilever Test (INDA)          | NWSP 090.1.R0 (15)  | ISO 9073-7: 1995, reviewed and confirmed 2011  |
| Stiffness of Nonwoven Fabrics Using the Gurley Tester                   | NWSP 090.2.R0 (15)  |  |
| Handle-O-Meter Stiffness of Nonwoven Fabrics                            | NWSP 090.3.R0 (15)  |  |
| Nonwovens Cusick Drape  | NWSP 090.4.R0 (15)  | ISO 9073-9: 2008, reviewed and confirmed 2011, |

|  |                    |  |
|--|--------------------|--|
| Nonwovens Bending Length (EDANA)   | NWSP 090.5.R0 (15) |  |
| Evaluation of Drapeability Including Drape Coefficient of Nonwoven Fabrics   | NWSP 090.6.R0 (15) | ISO 9073-9: 2008, reviewed and confirmed 2011, |
|  |                    |  |
| <b>10) TEAR STRENGTH</b>   |                    |  |
| Tearing Strength of Nonwoven Fabrics by Falling-Pendulum (Elmendorf) Apparatus   | NWSP 100.1.R0 (15) |  |
| Tearing Strength of Nonwoven Fabrics by the Trapezoid Procedure  | NWSP 100.2.R1 (15) | ISO 9073-4: 1997, reviewed and confirmed 2013  |
| Tearing Strength of Nonwoven Fabrics by the Tongue (Single Rip) Procedure using the Constant-Rate-of-Extension Tensile Testing Machine | NWSP 100.3.R0 (15) |  |
|  |                    |  |
| <b>11) TENSILE</b>   |                    |  |
| Breaking Strength and Elongation of Nonwoven Materials (Grab Strength Test)  | NWSP 110.1.R0 (15) | ISO 9073-18: 2007, reviewed and confirmed 2010 |
| Internal Bond Strength of Nonwoven Fabrics   | NWSP 110.3.R0 (15) |  |
| Breaking Force and Elongation of Nonwoven Materials (Strip Method)   | NWSP 110.4.R0 (15) | ISO 9073-3: 1989, reviewed and confirmed 2010  |
| Resistance to Mechanical Penetration (Ball Burst Procedure) of Nonwoven Fabrics  | NWSP 110.5.R0 (15) | ISO 9073-5:2008, reviewed and confirmed 2012   |

|  |                    |   |
|--|--------------------|---|
| <b>12) THICKNESS</b>   |                    |   |
| Thickness of Nonwoven Fabrics (INDA)   | NWSP 120.1.R0 (15) |   |
| Thickness of Highloft Nonwoven Fabrics   | NWSP 120.2.R0 (15) |   |
| Measuring Compression and Recovery of Highloft Nonwoven Fabrics  | NWSP 120.3.R0 (15) |   |
| Determination of Compression and Recovery of Highloft Nonwoven Fabrics Using Weights and Plates. Method 1: at room temperature     | NWSP 120.4.R1 (15) |   |
| Determination of Compression and Recovery of Highloft Nonwoven Fabrics Using Weights and Plates. Method 2: at elevated temperature | NWSP 120.5.R1 (15) |   |
| Nonwoven Thickness (EDANA)   | NWSP 120.6.R0 (15) | ISO 9073-2: 1995, reviewed and confirmed 2011 |
|  |                    |   |
| <b>13) WEIGHT</b>  |                    |   |
| Mass per Unit Area   | NWSP 130.1.R0 (15) | ISO 9073-1: 1989, reviewed and confirmed 2010 |
|  |                    |   |
| <b>14) BINDER/APPERANCE/DRY CLEANING</b>   |                    |   |
| Resin Binder Distribution and Binder Penetration, Analysis of Polyester Nonwoven Fabrics   | NWSP 150.1.R0 (15) |   |
| Appearance and Integrity of Highloft Batting After Refurbishing  | NWSP 150.2.R0 (15) |   |

|   |                    |  |
|---|--------------------|--|
| <b>15) LINTING</b>  |                    |  |
| Resistance to Linting of Nonwoven Fabrics (Dry)   | NWSP 160.1.R0 (15) | ISO 9073-10: 2003, reviewed and confirmed 2014 |
| Aqueous Method for Determining Releases of Particulates (Wet)   | NWSP 160.2.R0 (15) |  |
| Measuring Fibrous Debris from Nonwoven Fabrics  | NWSP 160.3.R0 (15) |  |
| Determining Fibrous Debris from Hydrophobic Nonwoven Fabrics  | NWSP 160.4.R0 (15) |  |
|   |                    |  |
| <b>16) SUPERABSORBENT MATERIALS</b>   |                    |  |
| Polyacrylate Superabsorbent Powders- Determination of pH  | NWSP 200.0.R2 (15) | ISO 17190-1:2001                               |
| Polyacrylate Superabsorbent Powders- Determination of the Amount of Residual Acrylate Monomers  | NWSP 210.0.R2 (15) | ISO 17190-2:2001                               |
| Polyacrylate Superabsorbent Powders-Determination of the Particle Size Distribution by Sieve Fractionation  | NWSP 220.0.R2 (15) | ISO 17190-3:2001                               |
| Polyacrylate Superabsorbent Powders-Estimation of the Moisture Content as Weight Loss Upon Heating  | NWSP 230.0.R2 (15) | ISO 17190-4:2001                               |
| Polyacrylate Superabsorbent Powders- Determination of the Free Swell Capacity in Saline by Gravimetric Measurement  | NWSP 240.0.R2 (15) | ISO 17190-5:2001                               |
| Polyacrylate Superabsorbent Powders- Determination of the Fluid Retention Capacity in Saline Solution by Gravimetric Measurement Following Centrifugation | NWSP 241.0.R2 (15) | ISO 17190-6:2001                               |
| Polyacrylate Superabsorbent Powders- Gravimetric Determination of Absorption Against Pressure   | NWSP 242.0.R2 (15) | ISO 17190-7:2001                               |
| Polyacrylate Superabsorbent Powders- Determination of the Permeability Dependent Absorption Under Pressure of Saline Solution by Gravimetric Measurement  | NWSP 243.0.R2 (15) |  |

|   |                    |   |
|---|--------------------|---|
| Polyacrylate Superabsorbent Powders- Gravimetric Determination of Flow Rate and Bulk Density                  | NWSP 251.0.R2 (15) | Merge of two WSP methods, the corresponding ISO standards are ISO 17190-8:2001 + ISO 17190-9:2001 |
| Polyacrylate Superabsorbent Powders- Determination of Extractable Polymer Content by Potentiometric Titration | NWSP 270.0.R2 (15) | ISO 17190-10:2001   |
|   |                    |   |
| <b>17) BACTERIAL</b>  |                    |   |
| Nonwovens Bacterial Filtration Efficiency   | NWSP 300.0.R0 (15) |   |
| Dry Bacterial Penetration   | NWSP 301.0.R0 (15) | ISO 22612:2005, reviewed 2014   |
| Nonwoven Wet Bacterial Penetration  | NWSP 302.0.R0 (15) | ISO 22610:2006, reviewed 2013   |
|   |                    |   |
| <b>18) FORMALDEHYDE</b>   |                    |   |
| Free and Hydrolyzed Formaldehyde in Nonwovens (Water Extraction Method) Method I                              | NWSP 310.1.R1 (15) |   |
| Free and Hydrolyzed Formaldehyde Extracted at Stressed Extraction Conditions in Nonwovens Method II           | NWSP 311.1.R1 (15) |   |
| Determination of Free Formaldehyde in Nonwovens by Liquid Chromatography Method III                           | NWSP 312.0.R1 (15) |   |
| Determination of Released Formaldehyde in the Processing of Aqueous Systems Method IV                         | NWSP 313.1.R1 (15) |   |
|   |                    |   |
|   |                    |   |



|  |                    |                         |
|--|--------------------|-------------------------|
| <b>19) Absorbent Hygiene Products</b>  |                    |                         |
| Menstrual Tampons Absorbency- Syngina Method   | NWSP 350.1.R1 (15) |                         |
| Determination of Ethanol- Extractable Organotin Species in Absorbent Hygiene Products and Materials, Absorbent Hygiene Materials-Organotin I               | NWSP 351.0.R0 (15) |                         |
| Determination of Organotin Species Extracted From Absorbent Hygiene Products and Materials With Synthetic Urine, Absorbent Hygiene Products – Organotin II | NWSP 352.0.R0 (15) |                         |
| Determination of Aceton Extractable Finish on Nonwoven   | NWSP 353.0.R0 (15) |                         |
| Absorption Before Leakage Using an Adult Mannequin   | NWSP 354.0.R1 (15) | ISO standard in process |
|  |                    |                         |
| <b>20) Supplementary Procedures</b>  |                    |                         |
| Surface Linting of Nonwovens   | NWSP 400.0.R1 (15) |                         |
| Composites Lamination Strength   | NWSP 401.0.R0 (15) |                         |
| Cup Crush  | NWSP 402.0.R0 (15) |                         |
| Testing High Loft and Needled Batting For Flame Resistance and Thermal Transfer Properties   | NWSP 403.0.R0 (15) |                         |
| Homogenization of Absorbent Hygiene Products Using a Laboratory Cutting Mill   | NWSP 404.0.R0 (15) |                         |
| Polyacrylate Superabsorbent Powders- Determining the Content of Respirable Particles   | NWSP 405.0.R0 (15) |                         |
| Polyacrylate Superabsorbent Powders- Determination of Dust in Collection Cassettes by Sodium Atomic Absorption/Emission Spectrometry                       | NWSP 406.0.R0 (15) |                         |
| Fiber Orientation Distribution of Nonwoven Fabrics   | NWSP 407.0.R0 (15) |                         |
|  |                    |                         |

|  |  |  |
|--|--|--|
| <b>21) FIBER GLASS MATS Pending due to current revision by TAPPI/INDA</b>  |  |  |
| Guidance Document: The use of Modified TAPPI Procedures for Sampling and Lot Acceptance, Stiffness, Tear Resistance, and Thickness |  |  |
| Guidance Document: Sample Location for Fiber Glass Mat Sheets  |  |  |
| Guidance Document: Test conditions for Fiber Glass Mat Test Methods  |  |  |
| Tensile Strength and Elongation at Break for Fiber Glass Mats  |  |  |
| Basis Weight of Fiber Glass Mats   |  |  |
| Moisture Content of Fiber Glass Mats   |  |  |
| Loss on Ignition of Fiber Glass Mats   |  |  |
| Fiber Glass Mat Uniformity (visual defects)  |  |  |
| Average Fiber Diameter of Fiber Glass Mats   |  |  |

\* Method Number

NWSP nnn.nn.Rr (yy)

NWSP → NonWovens Standard Procedure

nnn.nn → Numbering system, historically chosen

Rr → Revision number

(yy) → Year of last release (publication), e.g. 2015