

Purple Diamond Test List

Purple Diamond offers a wide range of testing capabilities and services. Our engineers want to make sure that your testing is conducted in a safe and efficient manner and done right the first time. Purple Diamond is committed to providing education, tools, and excellent customer service to all our clientele.

ISTA

- Procedure 1A: Packaged-Products weighing 150 lb (68 kg) or Less ISTA Testing
 - Procedure 1B: Packaged-Products weighing Over 150 lb (68 kg)
 - Procedure 1C: Extended Testing for Individual Packaged-Products weighing 150 lb (68 kg) or Less
 - Procedure 1D: Extended Testing for Individual Packaged-Products weighing Over 150 lb (68 kg)
 - Procedure 1E: Unitized Loads
 - Procedure 1G: Packaged-Products weighing 150 lb (68 kg) or Less (Random Vibration)
 - Procedure 1H: Packaged-Products weighing Over 150 lb (68 kg) (Random Vibration)
 - Procedure 2A: Packaged-Products weighing 150 lb (68 kg) or Less
 - Procedure 2B: Packaged-Products weighing over 150 lb (68 kg)
 - Procedure 2C: Furniture Packages
 - Procedure 3A: Packaged-Products for Parcel Delivery System Shipments 70kg (150 lb) or Less (standard, small, flat or elongated)
 - Procedure 3B: Packaged-Products for Less-Than-Truckload (LTL) Shipment
 - Procedure 3E: Unitized Loads of Same Product
 - Procedure 3F: Packaged Products for Distribution Center to Retail Outlet Shipment 100 lb (45 kg)
 - 6-FEDEX-A: FedEx Procedures for Testing Packaged Products Weighing Up to 150 lbs
 - 6-FEDEX-B: FedEx Procedures for Testing Packaged Products Weighing Over 150 lbs
 - 6-SAMSClub: Packaged-Products for Sam's Club® Distribution System Shipment
 - Procedure 7D: Thermal Controlled Transport Packaging for Parcel Delivery System Shipment
- 6-Amazon.com-SIOC and 6-Amazon.com-Overbox See next Section for Details**

AMAZON APASS TEST LIST

Project 6-AMAZON.COM-SIOC, Ships in Own Container (SIOC) for Amazon.com Distribution System Shipment

- Type A- Parcel Delivery of Packaged-Products, Standard Handling Method, Less than 50lb (23 kg) and Girth equal or less than 165" (4.19 m)
- Type B- Parcel Delivery of Packaged-Products, Standard Handling Method, 50lb (23 kg) to less than 100lb (45 kg) and Girth equal to or less than 165" (4.19 m)
- Type C- Parcel Delivery of Packaged-Products, Standard Handling Method, 100lb (45 kg) or Greater and Girth equal to or less than 165" (4.19 m)
- Type D- Less-Than-Truckload (LTL) Delivery of Individual Packaged-Products, Standard Handling Method, Less than 100lb (45 kg) or Girth greater than 165" (4.19 m)
- Type E- Less-Than-Truckload (LTL) Delivery of Individual Packaged-Products, Standard Handling Method, 100lb (45 kg) Greater or Girth greater than 165" (4.19 m)
- Type F- Less-Than-Truckload (LTL) Delivery of Individual Packaged-Products, Pallet Handling Method

- Type G- TV/Monitor, Parcel Delivery of Individual Packaged-Products Shipment Method, Standard Handling Method, Less than 150lb (68 kg) and Girth equal to or less than 165" (4.19 m)
- Type H- TV/Monitor, Less-Than-Truckload (LTL) Delivery of Individual Packaged-Products, Standard Handling Method, 150lb (68 kg) or Greater or Girth greater than 165" (4.19 m)

Project 6-AMAZON.COM-Over Boxing, E-Commerce Fulfillment for Parcel Delivery Shipment

- E-Commerce fulfillment of a packaged product configuration where the retail packaged product is not intended to ship in its own container
- Single or multiple retail packaged products in an over-box with dunnage
- Single or multiple item orders

ASTM

- ASTM D642: Standard Test Method for Determining Compressive Resistance of Shipping Containers, Components, and Unit Loads
- ASTM D4332: Standard Practice for Conditioning Containers, Packages, or Packaging Components for Testing
- ASTM D4169: Standard Practice for Performance Testing of Shipping Containers and Systems
- ASTM D7386: Standard Practice for Performance Testing of Packages for Single Parcel Delivery Systems
- ASTM D999: Standard Test Methods for Vibration Testing of Shipping Containers
- ASTM D3580: Standard Test Methods for Vibration (Vertical Linear Motion) Test of Products
- ASTM D4728: Standard Test Method for Random Vibration Testing of Shipping Containers
- ASTM D880: Standard Test Method for Impact Testing for Shipping Containers and Systems
- ASTM D1596: Standard Test Method for Dynamic Shock Cushioning Characteristics of Packaging Materials
- ASTM D3332: Standard Test Methods for Mechanical-Shock Fragility of Products, Using Shock Machines
- ASTM D5265: Standard Test Method for Bridge Impact Testing
- ASTM D5276: Standard Test Method for Drop Test of Loaded Containers by Free Fall
- ASTM D5277: Standard Test Method for Performing Programmed Horizontal Impacts Using an Inclined Impact Tester
- ASTM D5487: Standard Test Method for Simulated Drop of Loaded Containers by Shock Machines
- ASTM D6344: Standard Test Method for Concentrated Impacts to Transport Packages
- ASTM D6537: Standard Practice for Instrumented Package Shock Testing For Determination of Package Performance
- ASTM D3078: Standard Test Method for Determination of Leaks in Flexible Packaging by Bubble Emission
- ASTM D4991: Standard Test Method for Leakage Testing of Empty Rigid Containers by Vacuum Method
- ASTM D6653: Standard Test Methods for Determining the Effects of High Altitude on Packaging Systems by Vacuum Method
- ASTM G-154: Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials by QUV exposure

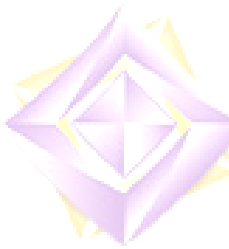
MIL

• 810 G

UN DOT CFR 49

| |
|------------------------------|
| NON-BULK Packaging |
| Drums |
| Metal |
| Plastic |
| Plywood |
| Fiber |
| Jerricans |
| Metal |
| Plastic |
| Boxes |
| Wood (all types) |
| Plastic |
| Metal |
| Fiberboard |
| Bags |
| Plastic (All types) |
| Textile |
| Paper |
| Composite Packagings |
| All Types |
| Infectious Substances |

| |
|-----------------------|
| BULK Packaging |
| IBC's |
| Metal |
| Plastic |
| Composite |
| Fiberboard |
| Wooden |
| Flexible |



PURPLE DIAMOND
Innovation Center
TESTING-DESIGN-ENGINEERING

ISO

- 8611-1 Pallets for materials handling
- 16104: Packaging — Transport packaging for dangerous goods — Test methods
- 3394: Packaging — Complete, filled transport packages and unit loads — Dimensions of rigid rectangular packages
- 3676: Packaging — Complete, filled transport packages and unit loads — Unit load dimensions
- 16101: Packaging — Transport packaging for dangerous goods — Plastics compatibility testing
- 16103: Transport packaging for dangerous goods — Recycled plastics material
- 16883: Transport packages for dangerous goods — Test methods for large packagings
- 11607: Packaging for terminally sterilized medical devices — Part 1: Requirements for materials, sterile barrier systems and packaging systems

STABILITY STORAGE

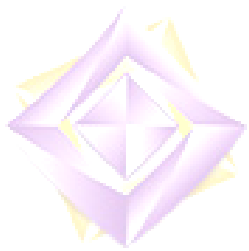
Purple Diamond can perform Accelerated Aging, ICH Stability Storage and Expose products in chambers to your specified temperature.

| Temperature | Humidity | Minimum Durations |
|-------------|----------------|-------------------|
| 25°C ± 2°C | 60% RH ± 5% RH | 12 Months |
| 30°C ± 2°C | 35% RH ± 5% RH | 12 Months |
| 30°C ± 2°C | 65% RH ± 5% RH | 12 Months |
| 40°C ± 2°C | 75% RH ± 5% RH | 12 Months |
| 5°C ± 3°C | Uncontrolled | 12 Months |
| -20°C ± 5°C | Uncontrolled | 12 Months |

TAPPI

- T 403 om-10: Bursting strength of paper T 409 sp-09 Machine direction of paper and paperboard
- T 410 om-08: Grammage of paper and paperboard (weight per unit area)
- T 411 om-10: Thickness (caliper) of paper, paperboard, and combined board
- T 414 om-12: Internal tearing resistance of paper (Elmendorf-type method)
- T 494 om-06: Tensile breaking properties of paper and paperboard (using constant rate of elongation apparatus)
- T 573 sp-09: Accelerated temperature aging of printing and writing paper by dry oven exposure apparatus
- T 576 pm-07: Tensile properties of towel and tissue products (using constant rate of elongation apparatus)

- T 580 pm-12: Thickness (caliper) of towel, tissue, napkin and facial products
- T 829 om-08: Score bend test



PURPLE DIAMOND
The Innovation Center
TESTING-DESIGN-ENGINEERING