IDFL News

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Top 10 Reasons to Test for Fill Power

1. Globally recognized method of predicting the insulation value of down and feather fillings.
2. Helps identify lightweight and warmth qualities.
3. Leading indicator of overall down and feather quality.
4. Helps distinguish between two otherwise similar down products.
5. Determines the proper filling weight. (Less down is needed for very high Fill Powers.)
6. Powerful marketing tool to identify premium products.
7. Highlights the value of high-quality duck.
8. Identifies problems in a down and feather filling. (If Fill Power is abnormally low, some other problems may exist.)
9. Many large retailers now require a Fill Power test.
10. Required in some countries, such as China.

What is Fill Power?

Fill Power is the volumetric measurement of a specific amount of down and feathers subject to a standard compression weight.

Factors that Affect Fill Power

- Percentage of feathers vs. down
- Species — duck vs. goose vs. landfowl
- Age and size of bird
- Cleanliness of the down material

How is Fill Power Tested?

Fill Power testing involves the following:

Conditioning methods

None	Direct measurement after washing/processing.
Box	Test after several days in a climate controlled room.
Oven Heated	Test after oven heated and climate room. (Chinese)
Tumble Dry	Dry in a home dryer before climate room. (EN method)
Water Rinse	Rinse in home washer and dry before climate room.
Steam	Steamed before climate room. (IDFB & Japan method)

Measurement Units

- IDFB method — mm/30g or cubic inches per ounce (in^3/oz.)
- European system — mm/20g or cm^3/g
- Chinese system — cm/oz. or cm^3/g

Cylinder Size

- IDFB/EN/Japan — standard cylinder (28.8cm diameter)
- China — similar to old USA/FTC cylinder (24.5cm diameter)

Measuring Mechanism

- Automated (IDFB and EN)
- Reeling of Plate (Japanese)
- Manual Measurement (IDFB alternative and China)

What is the Highest Fill Power?

- IDFL has tested material with Fill Power over 1000 in^3/oz.
- Fill Power over 800 in^3/oz is very difficult to guarantee in consistent shipments. Testing must be done on each shipment.

Which Fill Power Method is Best?

The most important factor in deciding how to test Fill Power is the method required by standards of the destination country.

The steam conditioning method is the most accurate method to consistently reproduce the original Fill Power of down after processing.

The Tumble Dry and Oven Heat methods provide useful information about Fill Power. However, these Fill Power values can be influenced by the way down is shipped and handled before the laboratory begins testing.

Converting Values to Another Method?

Fill Power values are not easily converted to another system because of different methods of conditioning and testing. The most accurate results are obtained by testing the Fill Power using the actual method.

Why Test Fill Power with IDFL?

- IDFL completes over 4,000 Fill Power tests each year.
- Each sample is double tested by a separate analyst.
- IDFL has an ongoing research project in Fill Power testing.

IDFL Expands Fill Power Test Facilities

All three IDFL offices have recently expanded Fill Power labs.

- IDFL Salt Lake just completed a 3rd climate-controlled Fill Power room, capable of testing over 100 Fill Powers daily.
- IDFL China completed Asia's most advanced Fill Power lab.
- IDFL Europe just remodeled its Fill Power test area.

Possible Changes to Fill Power Test Methods

- **Japan:** The current JIS method is being reworked. Contact the Japan Association for details.
- **China:** The standards committees are reviewing the oven heat method for possible changes.
- **Europe:** EDFA is reviewing the EN Fill Power standard.

For More Information

- IDFL Fill Power technical articles
- Evaluation of Fill Power Conditioning Methods
- **Fill Power Book:** IDFL has compiled a book of comprehensive information about Fill Power, including 10 years of IDFL research. Contact IDFL for details.

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