

# Re-NEW 400 Pellets

## Ingredient

<b>Composition</b>	<b>Starch from Corn and Potato + Biodegradable Polymers</b>
<b>Size</b>	<b>4.0 mm in Diameter</b>
<b>Density</b>	<b>22 kgs/cuft (777 kgs/ cu meter)</b>
<b>Packaging</b>	<b>680 kg Gaylords</b>
<b>Gaylord Size</b>	<b>100 cm X 83 cm X 90 cm</b>

## Expanded Product

<b>Degradability</b>	<b>Dissolves in Water; 1 Hr at 22° C 10 Sec at 60° C 24 Hr at 0° C Underground; 21 Days in Moist Soil Compostable; 7 Days in Warm Compost Incineratable; 4,200 cal to Burn</b>
<b>Density</b>	<b>0.40 – 0.50 lbs/cuft (0.006-0.007 gm/cc)</b>
<b>Size</b>	<b>15 mm X 40 mm (Length can be Varied)</b>
<b>Dust</b>	<b>Loosefill has Minimal Dust</b>
<b>Bulk Systems</b>	<b>Can be Used in Automated Systems</b>
<b>Production Capacity</b>	<b>Approx. 155 cubic meters per 8 hour shift</b>
<b>Absorption</b>	<b>40°C at 90% Rh; 3.1% in 24hr; 3.5% in 72hr</b>
<b>Incinerate</b>	<b>4,200 cal to Burn</b>

# Expanded Product Properties

Test Performed Using a 31cmX26cmX22cm Corrugated Box with 4 Wine Goblets Packed Starch Loosefill Material. Net Weight of the Sample Tested Was Approximately 1.4kg.

## Manual Handling

Distribution Simulation – Pass

Test Represents the Hazards Incurred During Manual Handling Such as Loading, Unloading, Throwing, Stacking, Sorting, and Palletizing.

## Vehicle Stacking

Distribution Simulation – Pass

Test Represents Compressive Loads That Occur During Transport or Warehousing.

## Loose Load Vibration

Distribution Simulation – Pass

Test Represents Shocks During transportation of Bulk Loads During Hauling.

## Vehicle Vibration

Distribution Simulation – Pass

Test Duplicates a Vehicle's Vibrational Environment During Transportation.

## Manual Handling

Distribution Simulation – Pass

Test Represents the Hazards Incurred During Manual Handling. Drops Were Conducted at Twice the Specified Height on All Faces, Edges, and Corners of the Boxes.

## Final Result

Pass

No Damage was Reported on the Contents of the Package in Any Tests.

# **Expanded Product Properties**

## **Electrostatic Adhesion Tests**

**US Military Specifications – Pass**

**This Test Showed the Loosefill Material Passed Electrostatic Adhesion Tests per Paragraph 3.12 of the Applicable US Military Specification for Packaging Material, Upon Completion of the Test, No Particles Adhered to the Container Walls.**

## **Environmental Conditioning Tests**

**General Specifications – Pass**

**General Humidity Testing Showed Minimal Shrinkage During a 3 Day Period at 40 C and 80% Rh. Tests Showed That Product Packaged in a Corrugated Box was Undamaged During Shipping Tests and the Loosefill Packaging Material Showed No Signs of Volume Reduction or Underfill.**

## **Rodent Infestation Tests**

**General Specifications - Pass**

**An Integrated Pest Management Program was Conducted Over a 2 Year Period. During the Period the Facility was Kept Pest Free. The Pest Control Center That Conducted This Program Stated That Starch Loosefill Presents No More Risk of Infestation by Rodents or Insects Than Polystyrene, Cardboard, Paper, or Plastic Foam. Starch Loosefill Will Not Attract Pests to Warehouses or Manufacturing Facilities.**

# Expanded Product Properties

Tests Performed Using a Transparent Cylinder Filled with a Known Volume of Loosefill, Subjected to a Weight Dropped from a Standard Height, and Allowed to Exert a Sustained Force Across the Cross-sectional Area for a Time Yield a Compressibility Factor that can be Quantified and Compared with Similar Materials. If After a Standard Time This Weight is Released, the Resultant Increase in Height can also be Compared For Similar Materials and Yield a Resilience Factor. Such Tests Were Carried Out for Several Resins with the Results Listed Below.

## Compression Test

<b>Test Products</b>	ReNew 400 Old Formula ReNew 400 New Formula Eco-Flow Current Formula
<b>Test Equipment</b>	1.5 Cubic Foot Cylinder 14 lb Weight Ruler to Measure Height 1.0 Cubic Foot of Loosefill per Test
<b>Time for Compression</b>	60 Second Hold – Average 3 Tests
<b>Time for Resilience</b>	120 Second After Release – Average 3 Tests
<b>Results - Compression</b>	ReNew 400 Old Formula – 19% Compression ReNew 400 New Formula – 13% Compression Eco-Flow Current Formula – 26% Compression
<b>Results - Resilience</b>	ReNew 400 Old Formula – 37% Resilience ReNew 400 New Formula – 51% Resilience Eco-Flow Current Formula – 24% Resilience

## Summary

The New Improved ReNew Resin has Greater Strength and Resilience Than the Competition.

Product Performs Better than Competitive Product for Protective Capabilities.

# Expanded Product Properties

Tests Performed Using a Standard Pneumatic Eductor to Simulate Blowing a Known Volume of Loosefill through a Pneumatic Loosefill Conveying System, were Developed To Determine the Propensity for a Given Sample to Create Dust. This Test can Predict Product Integrity and Strength. This Test was Designed to Identify Starch Loosefill Formulations that Could Withstand Conveying Systems in Standard Loosefill Customer Facilities Where Dusting Problems Were Present. This Test Finally was Put into Use in Product Development to Obtain Product Improvements that Would Provide Loosefill Product With Quality and Integrity. A Standard Amount of Product is Blown Through an Eductor, Recycled for Several Minutes, and Weighed to Determine the Amount of Product not Abraded During the Blowing Period. Such Tests Were Carried Out for Several Resins with the Results Listed Below.

## Conveying/Dust Test

<b>Test Products</b>	ReNew 400 Old Formula ReNew 400 New Formula Eco-Flow Current Formula
<b>Test Equipment</b>	10 HP Eductor Piping w/ Recycle Capabilities Wire Cage 1.0 Cubic Foot of Loosefill per Test
<b>Time for Recycle</b>	600 Second Recycle – Average 3 Tests
<b>Results – Conveying/Dust</b>	ReNew 400 Old Formula – 10% Loss ReNew 400 New Formula – <1% Loss Eco-Flow Current Formula – 12% Loss

## Summary

The New Improved ReNew Resin has Superior Strength and Resistance to Dust Over the Competition.

Product Outperforms Competition in Pneumatic Conveying Systems Under Conditions of Low Relative Humidity and Cold.

# **New Improved Product Information**

The New Improved Starch Loosefill Product has been Formulated to Provide a Packaging Material that is Stronger, Dusts Less, and Remains Resilient. This Product is the Only 100% Biodegradable Product on the Market. In Comparison with Competition, The New Loosefill Product Provides Better Protection and Stronger Performance. In Summary:

<b>Biodegradability</b>	<b>New 100% Biodegradable Formula Only Biodegradable Product Available</b>
<b>Dust</b>	<b>Dusts 90% Less than Competition Will Not Break Apart in Shipment</b>
<b>Product Conveying</b>	<b>Stronger with Better Conveying Toughest Product on the Market</b>
<b>Compression</b>	<b>Twice as Resistant to Deformation Cushions Your Fragile Items Better</b>
<b>Resilience</b>	<b>Provides Greater Packaging Integrity Has Better Cushioning Memory</b>
<b>Density</b>	<b>With All These Advantages New Formula is Lighter for Lower Shipping Costs</b>

## **Summary**

**The New Improved ReNew Loosefill Resin Out Performs Competition in All Phases of Packaging Performance. New Technology Provides a Product for Superior Conveying Under All Conditions Even at Low Relative Humidity and Cold Temperatures. You Wanted a Better Product and Clean Green Packing Developed a Better Product for You.**