

# UltraStart™

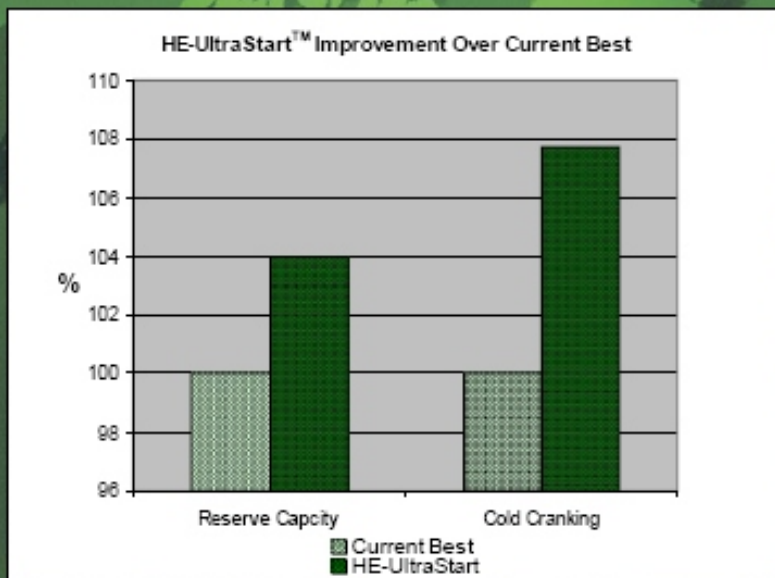
A Full Range Ultra Premium Expander for SLI/Engine Starting Applications

Patent Applied For

When Ultra-Cold Conditions Demand Ultra Starting Power



## Increased Performance Over Current Best



### Ultra Reserve Capacity

- 4% increase over our current best

### Ultra Cold Cranking Performance

- 7.7% increase over our current best

### Ultra Charge Acceptance

- Increased rate of charge acceptance

# HE-UltraStart™

Ultra Premium Expander

### Applications

Hammond Expanders UltraStart™ negative expander was specifically developed for use in exceptionally demanding conditions ranging from cold-crank starting, to reserve capacity and charge acceptance. It is our highest performing expander in all measures and is suitable for use in all SLI/engine starting applications. When usage demands the highest performance possible, HE-UltraStart™ is the expander that will provide it.

### Physical Properties

Odor.....Vanilla or wood pulp-like  
 Color.....Grayish black  
 Consistency.....Homogeneous powder

### Addition Rate

1.2% Dry

### Why Pre-blended Expanders?

- Precise control of component and bag weights
- Custom bag weights matched to your batch size; 1 bag per batch
- Elimination of messy stock items such as carbon
- Elimination of errors in paste mixing
- Every batch quality tested per ISO 9000:2001 standards
- Better uniformity of paste mix
- Reduce inventory cost, storage space, housekeeping and waste disposal
- Lets you focus on what you do best- make batteries!

# HE-UltraStart™

Ultra Premium Expander

## TECHNICAL DATA

### HE-UltraStart™ NEGATIVE EXPANDER

PRODUCT TECHNICAL DATA

**Uses:**  
SLI/Engine Starting

**Description:**  
Formulated to provide outstanding battery performance even at very high discharge rates in sub-zero conditions.

**Physical Properties:**  
 Odor.....Vanilla or wood pulp-like  
 Color.....Grayish black  
 Consistency.....Homogeneous powder  
 Addition to Paste Mix.....Dry

**Packaging:**  
Weight (6 lbs. / 2.7 kg ranging to 44 lbs. / 19.9 kg) to be specified by customer. All bags are custom weighed to match a "1 bag per paste batch" addition rate for ease of use.

#### Selection Guide:

Application	Expander Type	Components	Addition Rate
SLI/Engine Starting	HE-UltraStart	Barite/Pine Carbon Sodium Uricosulfonate Others	1.2 %

#### Trace Elements:

Element	Typical (ppm)	Maximum
Iron	100	200
Copper	50	150
Nickel	5	10
Manganese	5	10



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ISO 9000:2001 Certified Supplier

Patent Applied For

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