

QS-PDS-801 Rev. 03



Description An odorless, white powder.
Lithium carbonate based admixture.

Product Specifications

	Guaranteed
Li ₂ CO ₃	99.0 wt% min
H ₂ O*	0.6 wt% max
Cl	0.01 wt% max
SO ₄	0.1 wt% max
Fe ₂ O ₃	0.003 wt% max
CaO	0.05 wt% max
Na ₂ O	0.2 wt% max
Insolubles (in HCl)	0.02 wt% max
D50	7 – 18 μm
D90	50 μm max
Malvern mean	12 – 30 μm

* Loss at 500°C

Typical Properties

Bulk Density	0.7 g/cm ³ (44 lb/ft ³), tap
Loose Density	0.4 g/cm ³ (25 lb/ft ³)
Molecular Weight	73.89
Melting Point	720 ^o C
Specific Heat @ 25^o C	0.315 cal/g ^o C
Standard Heat of Formation	–290.64 kcal/mole
Standard Heat of Fusion	10.7 kcal/mole
Water Solubility @ 20^o C	1.3 wt %

Applications

LifeTech superfines are the medium fine of the LifeTech grades of lithium carbonate available from Livent. Because of its fine particle size and narrow particle size distribution, this product has been chosen as the grade of choice where reactivity and performance are based on the surface area of the lithium carbonate particles providing controllable, uniform and predictable rates of reaction. Since it is the medium of the grades, it is not as reactive as the ultrafines, but more reactive than the fines. If a different reaction rate is desired, the other LifeTech grades should be evaluated in use.



Cementitious Systems

LifeTech superfines is a chemical admixture that can be used to adjust and accelerate the setting time of cementitious systems such as high-alumina cements (HAC) and alumina-portland cement blends. Common applications for HAC and HAC/PC blends include:

- Refractory cements
- Shotcrete / gunite
- Self-leveling floor systems
- Quickset adhesives
- Quickset mortars
- Rapid-repair materials

The dosage of LifeTech superfines depends on the type of cementitious system in use, as well as the cement factor of the mix design. LifeTech superfines provides an accelerating effect by increasing the rate of cement hydration at an early age. In the presence of LifeTech superfines, compressive strength begins to develop immediately. The desired setting time can be adjusted by changing the dosage rate (See figure 1). For example, in a HAC system, the setting time can be adjusted to a few minutes. In general, LifeTech superfines is more reactive than technical grades of lithium carbonate.

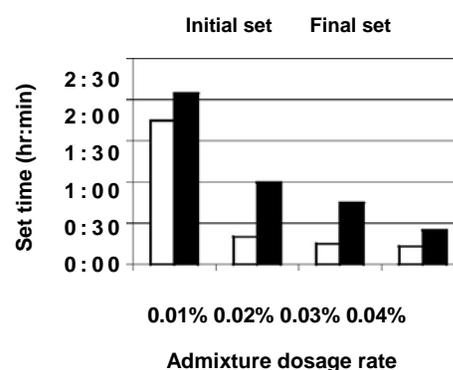


Figure 1
Effect of LifeTech superfines dosage rate on set times of HAC

In general dosages of 0.02-0.05 % are sufficient for pure HAC systems, and addition rates of LifeTech superfines should be increased as percentage of HAC in HAC/PC mixes is decreased. For example, in mixes containing 10% HAC, set times similar to those obtained at 0.02% addition of LifeTech superfines in pure HAC systems may need addition rates of 0.5-1.0 %. All addition rates are based on total cementitious amount. Our technical experts can provide assistance on dosage based on intended use. LifeTech superfines provides a uniform set throughout the mix not achievable with grades that provide a wider particle size distribution.

LifeTech superfines is a chemical admixture containing essentially no sodium or potassium alkalis, which are known to promote alkali-silica reaction (ASR) in cementitious systems containing reactive silica minerals. LifeTech admixture is based on lithium, which is known to suppress the ASR reaction in concrete.

Other

The unique properties of LifeTech superfines have made this product the grade of lithium carbonate of choice in a number of other applications such as in manufacture of ceramics, welding rods, refractory materials, and specialty glasses. Dosage rates vary widely depending on the application. Because this product is more reactive due to its reduced particle size in these applications, in general, lower quantities of LifeTech superfines are needed than coarser grades of lithium carbonate. Testing should be conducted in the application to optimize dosage when substituting LifeTech superfines for another grade of lithium carbonate.



Toxicity / Safety Data White granular solid or powder, odorless. Eye irritant; no significant hazard in industrial/commercial applications.

COMPLETE INFORMATION ON TOXICITY AND SAFETY IS CONTAINED IN THE SAFETY DATA SHEET (SDS) AVAILABLE FOR THIS PRODUCT.

Handling/Storage Avoid contact with eyes, skin or clothing. Use with adequate ventilation. Wear safety glasses or goggles and rubber gloves. Wash thoroughly after handling. Keep away from strong acids. Keep container closed.

Shipping Containers LifeTech superfines is packaged and shipped in polyethylene lined fiber drums containing 220 lbs (100 kg) or in 50 lb (22.7 kg) bags packaged 44 to a pallet for a total of 2,200 lbs (1,000 kg) per pallet. Packaging in supersacks is available upon special request.

Shipping Limitations Shipments of LifeTech superfines are not classed as hazardous for transport. Shipments by post, parcel (e.g. UPS), air, water, rail, or road are acceptable within each carrier's weight limits and packaging requirements.

Responsible Care initiative dictates that all shipments of lithium chemicals must be transported in a DOT-approved vehicle in a responsible manner (i.e., no flat bed trucks).

LifeTech superfines is not manufactured nor intended for drug use.



© 2018 Livent. All rights reserved.

The Livent logo and LifeTech are trademarks of Livent.

The information contained herein is, to our knowledge, true and accurate. While this material is furnished in good faith, no warranty expressed or implied, of merchantability, completeness, fitness or otherwise is made. This material is offered only for your consideration, investigation and verification, and Livent disclaims any liability incurred from the use thereof and shall not in any event, be liable for any special, incidental or consequential damages arising from such use. This information is not intended to be all inclusive and the manner and conditions of use and handling of any material may involve other or additional considerations specific to the use or user. Nothing herein should be construed as permission or recommendation to infringe any patent or as to any specific use. No agent, representative or employee of this company is authorized to vary any term of this notice.