



**GlyAcid**<sup>®</sup>  
glycolic acid  
formaldehyde free

**GlyAcid**<sup>®</sup>  
TECHNOLOGY

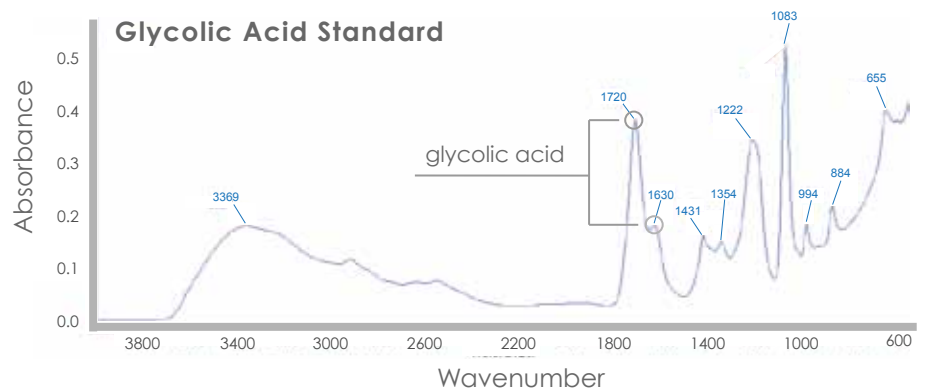
Purity is a fundamental strategy at CrossChem and inherent to the GlyAcid<sup>®</sup> product line. Our unique chemistry and purification process creates a new benchmark for personal care formulations.

For more than 40 years, glycolic acid has been predominately produced by either the carbonylation of formaldehyde or with glycolonitrile as a starting material. Both processes leave residual traces of formaldehyde in the finished commercial product.

By contrast, CrossChem's GlyAcid<sup>®</sup> is produced using a proprietary acid saponification and purification process that does not use formaldehyde in the process while delivering a high purity glycolic acid in 57% solution, 70% solution and 99% crystalline.

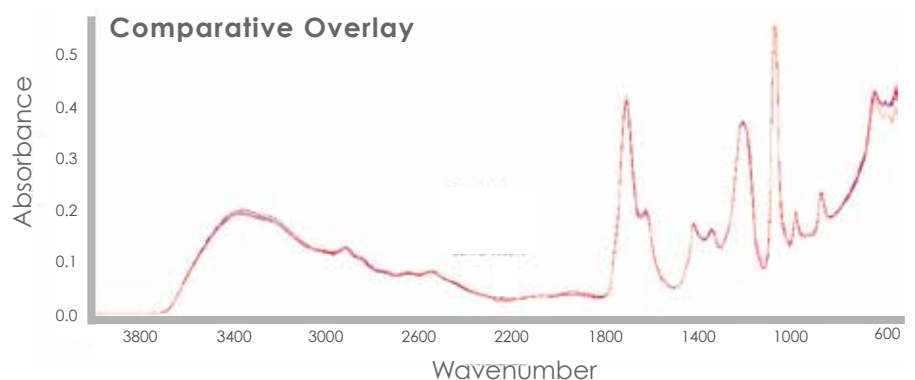
## FTIR ANALYSIS

Glycolic acid is actually an equilibrium between glycolic acid and glycolide (1,4-dioxane-2,5-dione). This equilibrium is evident in the IR by the two peaks found in the carbonyl region at 1720 cm<sup>-1</sup> and 1630 cm<sup>-1</sup>.



## FORMULA CONSISTENCY

To ensure formulation consistency, we compared the FTIR spectrum of three CrossChem GlyAcid<sup>®</sup> lots with a leading competitor. As shown in the overlay to the right, GlyAcid<sup>®</sup> possesses an identical infrared spectrum.





**GlyAcid**<sup>®</sup>  
glycolic acid

formaldehyde free

## 57 HP

### GlyAcid<sup>®</sup>

#### SPECIFICATIONS

Property	Limits	Typical Results
Total Acid %	56 - 58	57.1
Free Acid %	52 - 54	52.7
Color (APHA)	15 Max	8
Formaldehyde mg/Kg	Report	U*
Iron ppm	3 Max	2.08

\*U: Undetectable - tests show property not detected.  
Appearance: Clear liquid

Stability: GlyAcid<sup>®</sup> 57 HP is stable when stored under normal conditions. If stored at temperatures below 14C (57F), precipitation may occur. This precipitation does not affect product quality. To re-dissolve, heat product to 40C (104F) with agitation.

#### PHYSICAL PROPERTIES

Property	Value
Formula	C <sub>2</sub> H <sub>4</sub> O <sub>3</sub>
Precipitation Point, C (F)	14 (57)
Molecular Weight	76.05
pH, 25C (77F)	0.4
Density @ 15.6 (60F), lbs/gal	10.5
g/MI (Mg/m <sup>3</sup> )	1.21

## 70 HP

### GlyAcid<sup>®</sup>

#### SPECIFICATIONS

Property	Limits	Typical Results
Total Acid %	70 - 72	71.1
Free Acid %	63 - 66	64.7
Color (APHA)	15 Max	8
Formaldehyde mg/Kg	Report	U*
Iron ppm	3 Max	2.19

\*U: Undetectable - tests show property not detected.  
Appearance: Clear liquid

Stability: GlyAcid<sup>®</sup> 70 HP is stable when stored under normal conditions. If stored at temperatures below 14C (57F), precipitation may occur. This precipitation does not affect product quality. To re-dissolve, heat product to 40C (104F) with agitation.

#### PHYSICAL PROPERTIES

Property	Value
Formula	C <sub>2</sub> H <sub>4</sub> O <sub>3</sub>
Precipitation Point, C (F)	14 (57)
Molecular Weight	76.05
pH, 25C (77F)	0.4
Density @ 15.6 (60F), lbs/gal	10.5
g/MI (Mg/m <sup>3</sup> )	1.27

## 99 HP

### GlyAcid<sup>®</sup>

#### SPECIFICATIONS

Property	Limits	Typical Results
Total Acid %	99 Min	99.3
Formaldehyde mg/Kg	Report	U*

\*U: Undetectable - tests show property not detected.  
Appearance: Clear crystals

#### PHYSICAL PROPERTIES

Property	Value
Formula	C <sub>2</sub> H <sub>4</sub> O <sub>3</sub>
Molecular Weight	76.05
State of Matter	Solid
Melting Point C (F)	77 (171)
pH	NA

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