

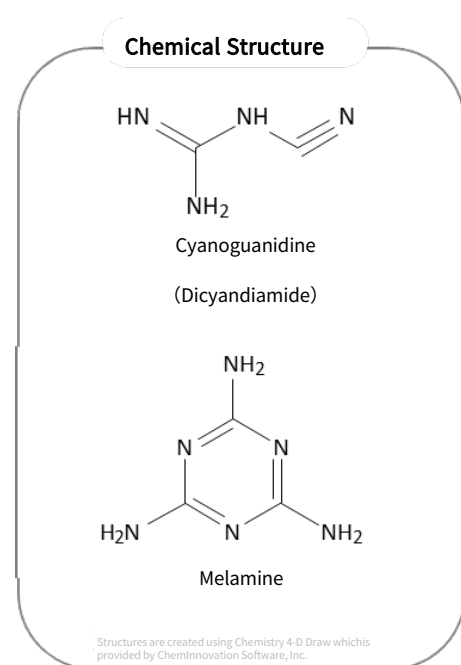
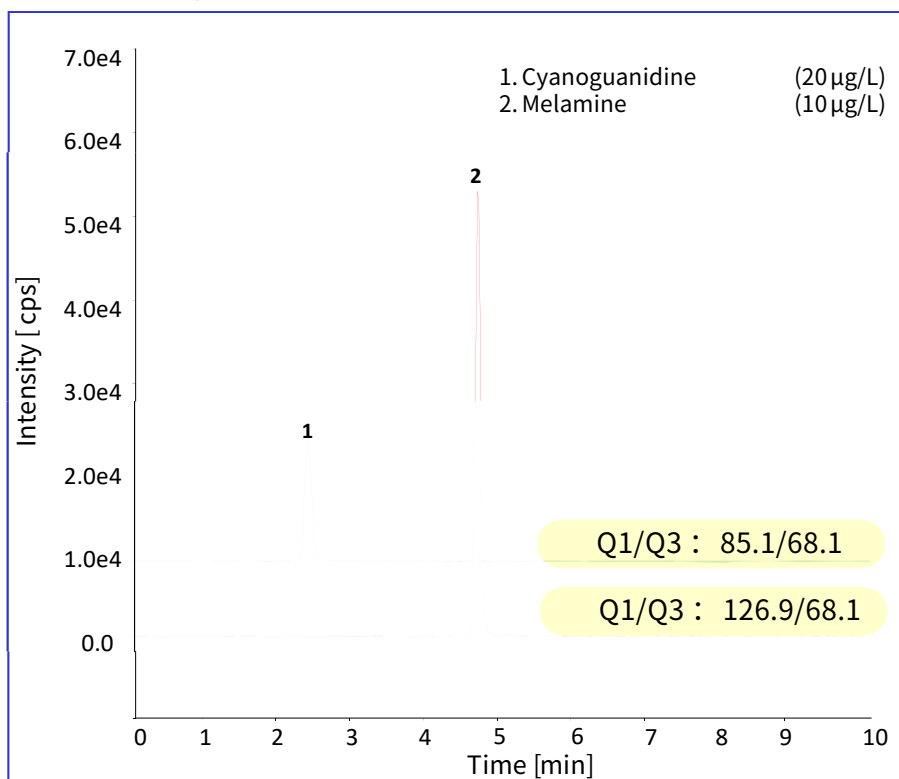
# Simultaneous Analysis of Cyanoguanidine and Melamine in Food by LC/MS/MS

It became a serious problem in China and Taiwan in 2013 that cyanoguanidine, or dicyandiamide, was detected in powdered milk made in New Zealand. Since cyanoguanidine is contained in some chemical fertilizer as nitrification inhibitor, it is considered as a possible cause of the problem that such fertilizer was used in ranch. In 2008, melamine was detected in milk and dairy products, which also became a big issue. HILIC

(hydrophilic interaction chromatography) mode was used for the determination of melamine content because melamine is highly hydrophilic. Chemical structure of cyanoguanidine is similar to that of melamine. In this note, cyanoguanidine was analyzed with HILIC mode. Cyanoguanidine and melamine could be determined simultaneously using Inertsil HILIC as a separation column.

(K.Kanno)

## Chromatogram Obtained from Standard Sample



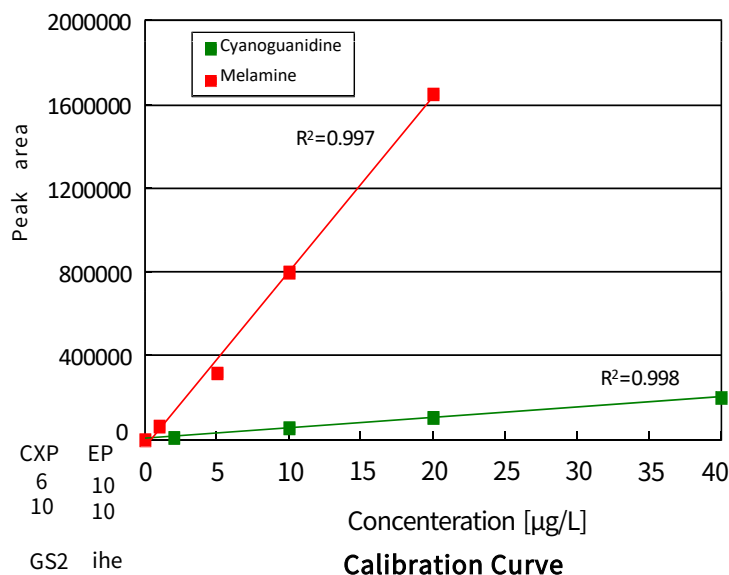
### HPLC Condition

**System** : LC800  
**Column** : Inertsil HILIC  
(5 µm, 150 x 3.0 mm I.D.)  
**Eluent** : A) CH<sub>3</sub>CN  
B) 10 mM Ammonium acetate  
A/B = 90/10 – 0.5 min – 90/10 – 5.5 min –  
50/50 (Equilibration for 5 min), v/v  
**Flow Rate** : 0.5 mL/min  
**Col. Temp.** : 40 °C  
**Detection** : MRM (SRM)  
**Inj. Vol.** : 5.0 µL

### MS/MS (MRM) Condition

**System** : 4000 QTRAP (ABSciex)  
**Detection** : Compound Q1 Q3 DP CE CXP EP  
Cyanoguanidine 85.1 68.1 41 41 6 10  
Melamine 126.9 68.1 41 41 10 10

**Ion Source** : ESI (Posi) CUR CAD IS TEM GS1 GS2 ihe  
10 8 5500 700 60 30 on



## Chromatograms Obtained from Powdered Milk Sample

## Example of Sample Pretreatment

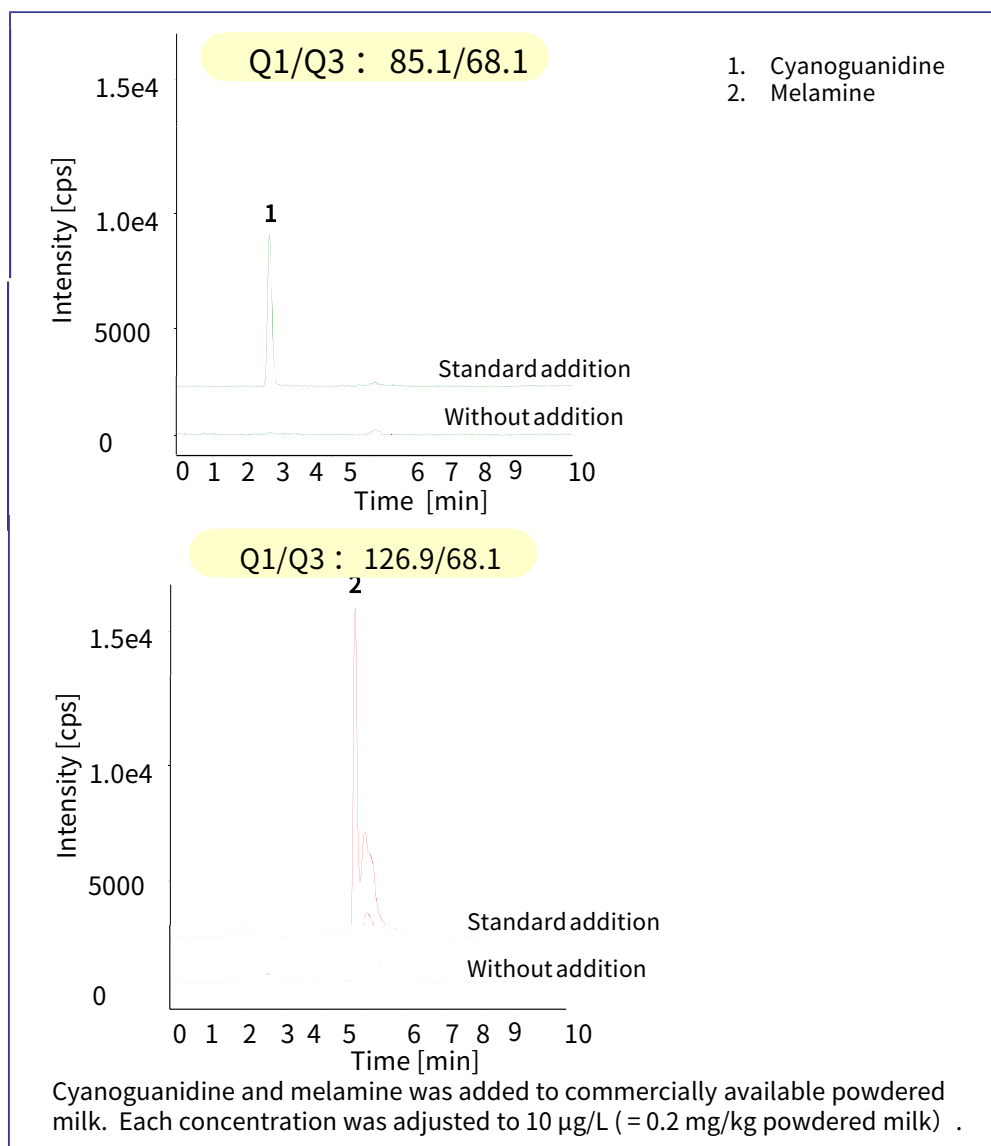
## Sample

1.0 g

## Extraction

- 20 mL of water/acetonitrile 50/50 (v/v)
- Sonication extraction for 30 min
- Filtration (0.45  $\mu$ m membrane filter)

## HPLC



## &lt; HPLC Column used in This Note&gt;

Inertsil HILIC 5  $\mu$ m, 150 x 3.0 mm I.D. (Cat.No. 5020-07715)

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