

In 2007, pet foods imported from China caused serious illnesses or deaths in a large number of cats and dogs. US Food and Drug Administration reported that melamine was found in the pet foods as well as in urine of affected animals. Moreover, in 2008, milk and infant formula adulterated with melamine caused kidney stones and other renal failure, especially among young children.

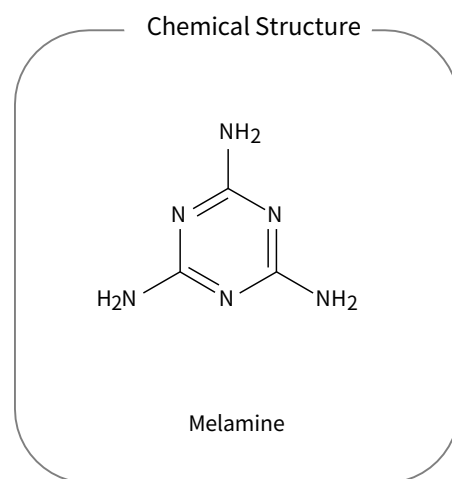
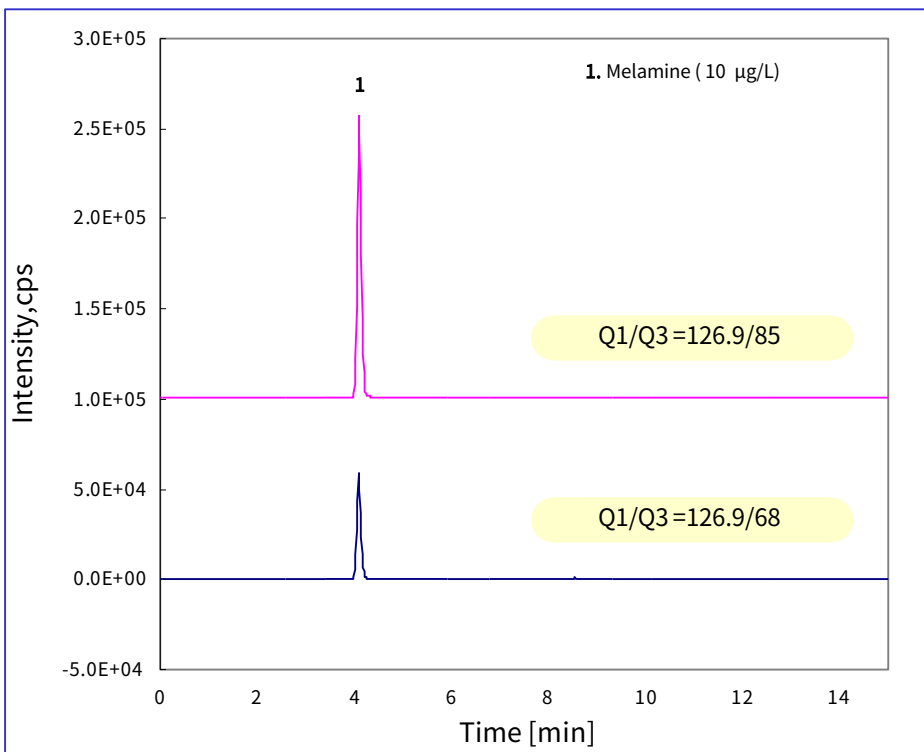
Since melamine is very hydrophilic compound, it is

difficult to retain and analyze melamine using ODS columns. It is also undesirable to use ion-pair reagents because the sensitivity is reduced in LC/MS/MS detection.

In this note, Inertsil HILIC (hydrophilic interaction chromatography) was used as a separation column. Melamine was successfully retained and determined with good linearity.

(K.Suzuki)

A chromatogram obtained from standard solution



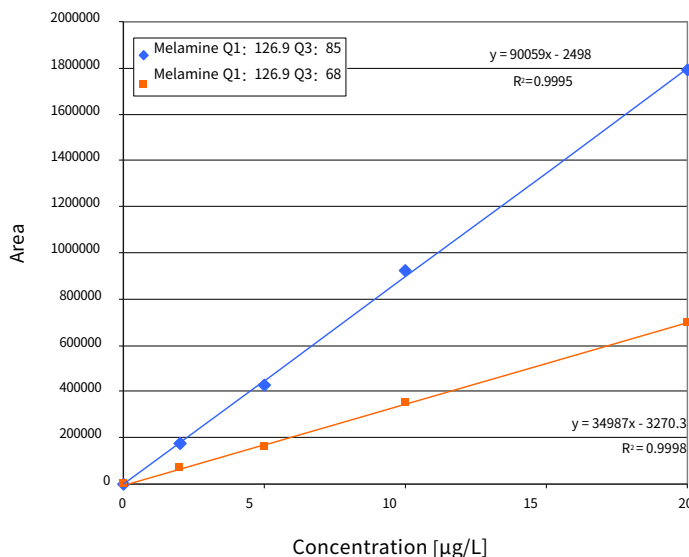
HPLC Conditions

System : LC800
Column : Inertsil HILIC (5 µm, 150 x 3.0 mm I.D.) Cat.No. 5020-07715
 : A) CH₃CN
 : B) 10 mM ammonium acetate
Eluents : A / B = 85 / 15 – 0.5 min – 85 / 15 – 6.5 min – 50 / 50
 (equilibration for 8 min), v/v
Flow rate : 0.5 mL/min
Col. Temp. : 40 °C
Detection : MRM (SRM)
Inj. Vol. : 5 µL

MS/MS (MRM) Conditions

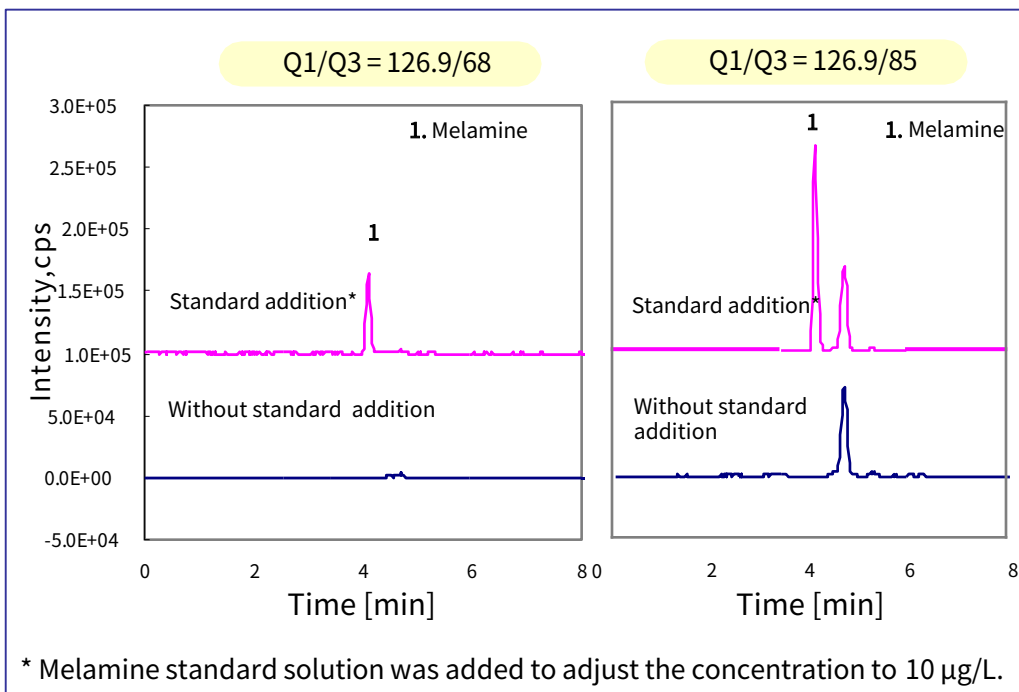
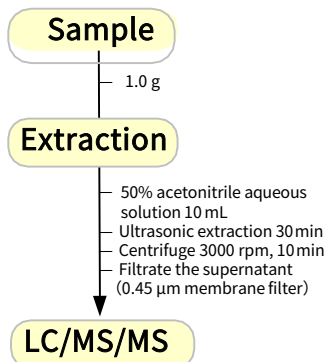
System : API-4000 Q TRAP (Applied Biosystems Japan Ltd.)
Detection : Compound Q1 Q3 DP EP CE CXP
 Melamine 126.9 85 41 10 27 14
 126.9 68 41 10 41 10

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



The calibration curves for melamine

An example of sample pretreatment



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