Identification of Isopropyl Citrate - Japanese Standards for Food Additives (9th edition)

Isopropyl citrate is a food additive used to prevent food oxidation.
The confirmation test (2) for isopropyl citrate in the Japanese Standards for Food Additives (up to the 8th edition) was made using a precipitation reaction that required a reflux operation. But from the 9th edition this was changed to a GC method . In accordance with the new identification test (2) for isopropyl citrate described in the official formula, this application note demonstrates a test made using InertCap AQUATIC-2 a neutral polar capillary column, and the results were found to be excellent.

Measurement procedure

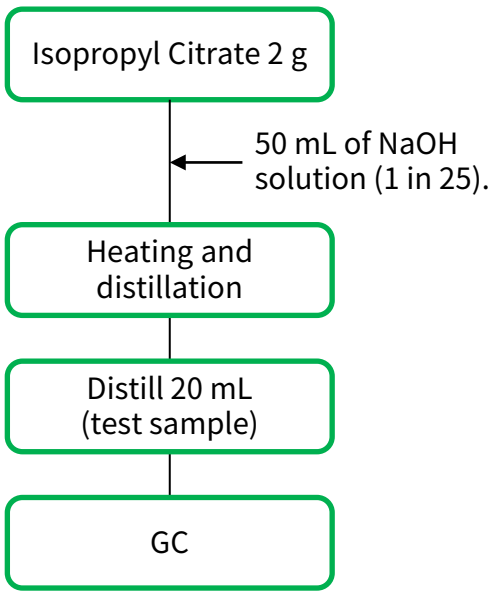


FIG. 1: Distillation

The retention time of the main peak in the test sample is consistent with that of 2-propanol in the standard (*).

* Standard... 2-propanol solution (1 in 5)

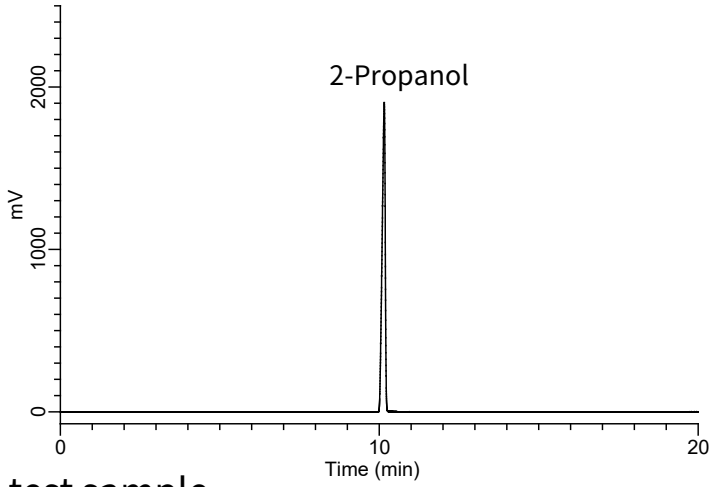
Assay conditions

Conditions

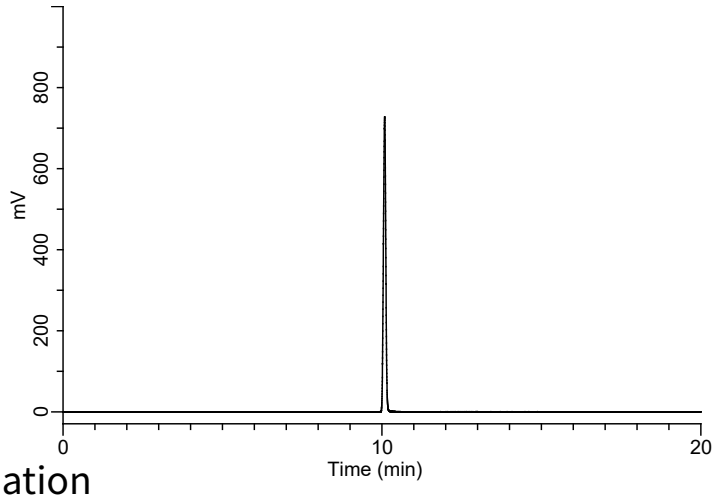
System	: GC - FID
Column	: InertCap AQUATIC-2 0.25 mm I.D. x 60 m df = 1.40 µm
Col. Cat. No.	: 1010-19166
Col. Temp.	: 40 ˚C (6 min hold) - 5 ˚C/min - 110 ˚C (10 min hold)
Carrier Gas	: He 1.3 mL/min * Adjust the flow rate so that 2-propanol is eluted in approx. 10 minutes.
Injection	: Split 100:1 200 ˚C
Injection Vol.	: 1 µL
Detection	: FID Auto Range 250 ˚C

Measurement

Chromatogram of the standard



Chromatogram of the test sample



Relative standard deviation

The relative standard deviation was determined to confirm the reproducibility of this test.

Table 1. Repeatability of 2-propanol area values for the standard and the test sample

2-Propanol	1 st	2 nd	3 rd	4 th	5 th	Ave.	Standard deviation	Relative standard deviation (%)
Standard	12727879	12634489	12742957	12688097	12839288	12726542	75721	0.59
Test sample	3894261	3904791	3841486	3712060	3797372	3829994	78787	2.06

GL Sciences Inc. Japan
22-1 Nishishinjuku 6-chome
Shinjuku-ku, Tokyo
163-1130, Japan

Phone: +81-3-5323-6620
Fax: +81-3-5323-6621
Email: world@gls.co.jp
Web: www.glsciences.com

GL Sciences Inc. USA
4733 Torrance Blvd. Suite 255
Torrance, CA 90503
USA

Phone: +1-310-265-4424
Fax: +1-310-265-4425
Email: info@glsciencesinc.com
Web: www.glsciencesinc.com

GL Sciences B.V.
Dillenburgstraat 7C
5652AM, Eindhoven
The Netherlands

Phone: +31-40-254-9531
Email: info@glsciences.eu
Web: www.glsciences.eu

GL Sciences (Shanghai) Limited
Tower B, Room 2003
Far East International Plaza
No.317 Xianxia Road, Changning District
Shanghai, China 200051

Phone: +86-21-62782272
Email: contact@glsciences.com.cn
Web: www.glsciences.com.cn

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