TRISKEM INFOS

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Contents

Dear customers,

10 years Triskem-thanks to your trust and support!

TrisKem has gone through many developments over these years, from the first production run to the move into our new facilities. All of this wouldn't have been possible without you – our customers and users all around the world.

Over these ten years two things have remained our driving force:
Innovation: We are dedicated to high quality development and production of innovative technologies from laboratory to semi industrial scale for use in domains requiring highly selective solutions such as analytical and radiochemistry, nuclear medicine and decommissioning. You'll find an example of this in the latest issue of our newsletter with the new TK200 Resin which is already successfully finding use in the growing field of radiopharmacy.
Quality of our products and services: We commit our competence and expertise in separation chemistry at your disposition to help you meeting your needs and solving your problems. We rely on your comments, questions and demands to improve our services and the quality of our products, so please continue to contact us at *contact@triskem.fr.*

To better serve you, our new web site will very soon be online, and we have prepared video tutorials which will be available on our YouTube channel.
In the meantime, *we wish you a successful and healthy New Year 2018!*

Your Triskem Team

TK200 Resin

The TK200 Resin is based on TriOctylPhosphine Oxide (TOPO) an extractant widely used in the extraction of metal ions.

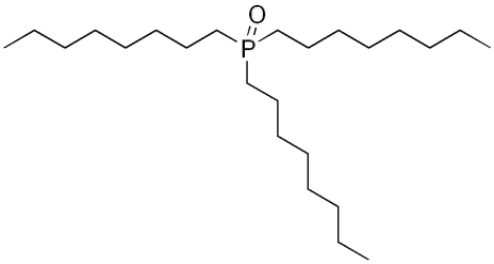

Figure 1: Trioctylphosphine oxide (TOPO)

Some examples of D_w values determined in HNO_3 and HCl using ICP-MS are shown below.

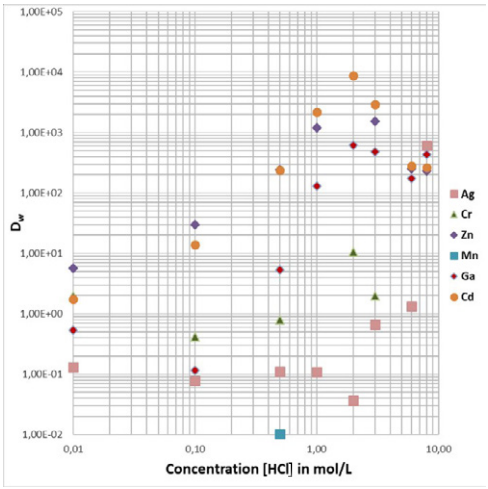

Figure 2: D_w values of selected elements on TK200 Resin in HCl

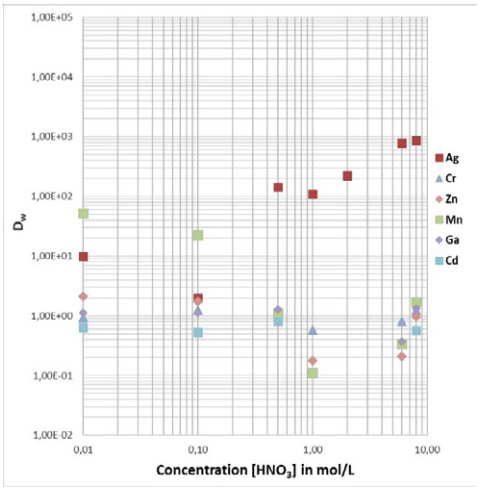

Figure 3: D_w values of selected elements on TK200 Resin in HNO_3

D_w values for a wide range of additional elements may be found in the corresponding product sheet.

Cd, Zn and Ga are very well retained at HCl concentrations >1M. This is especially interesting with respect to Ga separation chemistry as Ga is not retained at 1 – 2M HCl on most resins.

In HNO_3 of the elements shown here only Ag is retained whereas e.g. Ga and Zn are not.

A typical example of the use of the TK200 Resin is the separation of Gallium isotopes (especially Ga-68) from irradiated Zn targets for medical use in combination with the ZR Resin [1].

ZR Resin is very well suited for the separation of Ga from Zn matrices, under low acid conditions (e.g. 0.1M HNO_3 often employed for liquid targets) as well

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News

DGA Resin

DGA Resin can conveniently be packed into columns after soaking it in a 5 – 10% ethanol solution (rather than 2 – 3 M HNO_3) for > 30min

Tutorials

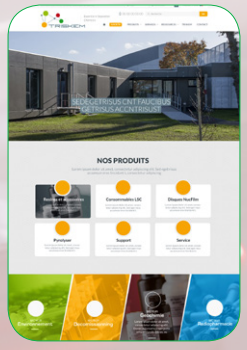
You'll find four tutorials on our new YouTube Channel

- Microprecipitation
- Column packing
- Use of a vacuum box
- Use of prepacked columns

All tutorials are available with English, French, German, Russian, Chinese and Japanese subtitles!

New website

We are very glad to announce that our NEW WEBSITE will be online soon!



On our own behalf

Our historic supplier of empty columns has discontinued his activity. We have worked to find an appropriate replacement, which caused issues with tips not breaking correctly, leaks and running dry of columns, and bubbles. We very much apologize to all our customers who were impacted by this situation. We are now pleased to inform you that we have solved the problems and that we have found a local supplier who can guarantee the quality you expect. We thank you very much for your patience and your support.

as at high acid concentrations (e.g. 10M HCl) conditions often used for the dissolution of solid Zn targets.

An elution study showing the separation of Ga from Zn and potential impurities on ZR Resin is shown in fig. 4.

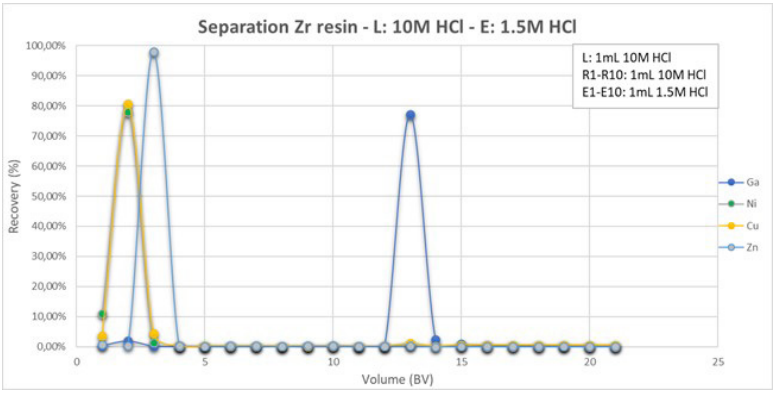


Figure 4: Ga/Zn separation on ZR Resin - load from 10M HCl

Ga is eluted from the ZR Resin in a small volume (1 – 2 column volumes) of 1.5M HCl, conditions too acidic for direct use in labelling reactions.

The TK200 Resin on the other hand allows for Ga extraction at 1.5M HCl, followed by Ga elution using aqueous solutions (fig. 5).

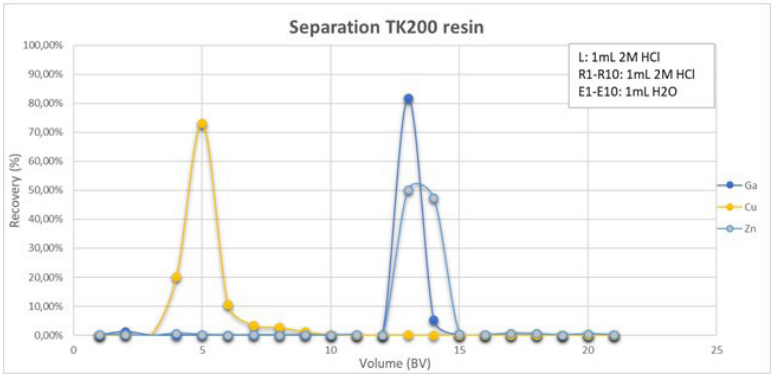


Figure 5: Ga elution from TK200 resin with water following load from 1.5M HCl

It should be noted though that only very little additional Ga/Zn separation is taking place on the TK200 Resin.

Another typical application of the TK200 Resin is the determination of actinides such as U, Th and Pu in water samples

As shown in fig. 6, U and Th are very well retained over the whole HNO_3 concentration range, including 0.01M.

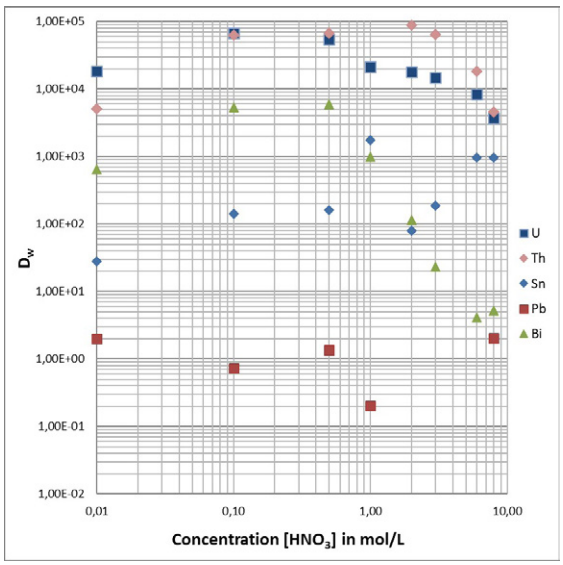


Figure 6: D_w values of selected elements on TK200 Resin in HNO_3

This allows for using the TK200 resin for the preconcentration of actinides from acidified water samples (fig. 7 – 9), and their subsequent separation on the same column.

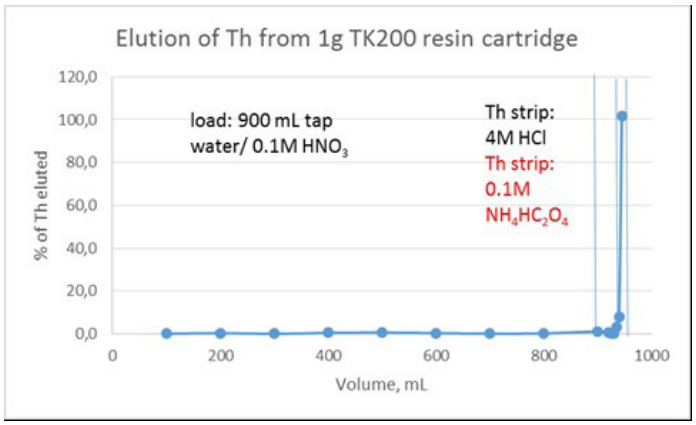


Figure 7: Elution study Th retention and elution on TK200 Resin (data courtesy of Nora Vajda)

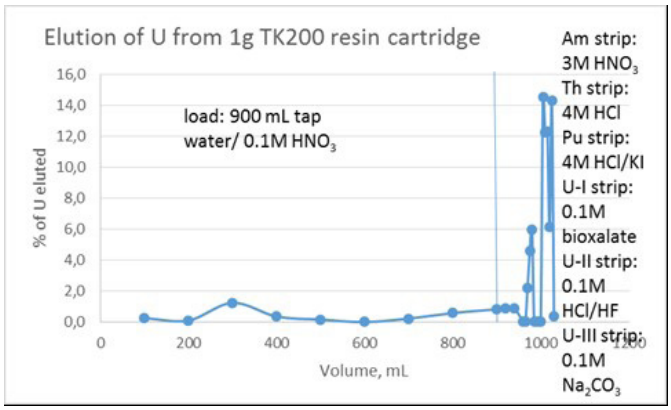


Figure 8: Elution study U retention and elution on TK200 Resin (data courtesy of Nora Vajda)

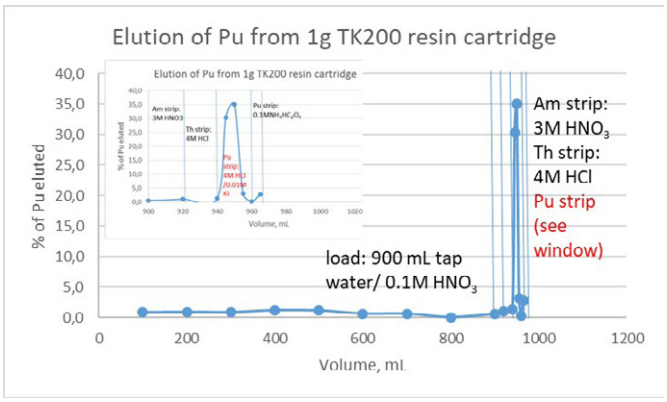


Figure 9: Elution study Pu retention and elution on TK200 Resin (data courtesy of Nora Vajda)

U and Th are also very well retained from HCl (fig.10).

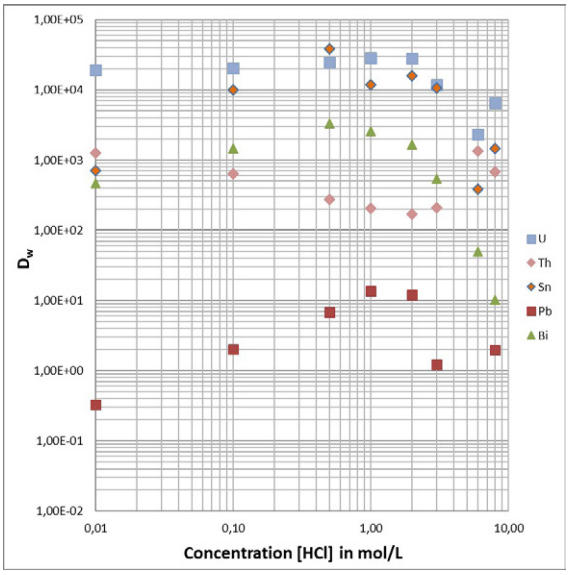


Figure 10: D_w values of selected elements on TK200 Resin in HCl

By employing oxalic acid of suitable concentration a clean U/Th separation may be obtained as shown in fig.11.

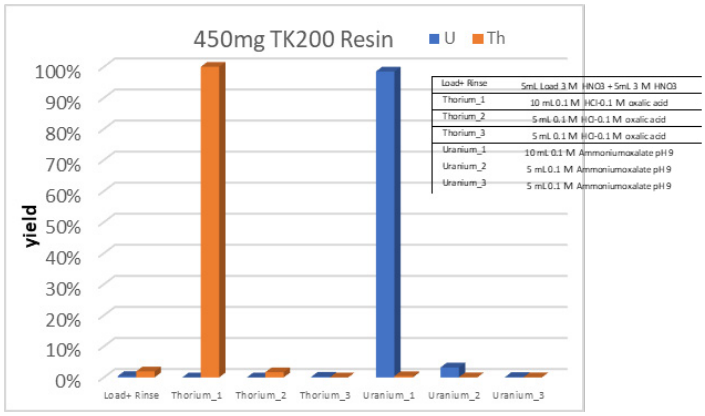


Figure 11: Elution study U/Th separation on TK200 Resin (data courtesy of Carina Dirks)

Agenda

TrisKem will be participating to the following upcoming conferences and is very much looking forward to meeting and discussing with you there!

COGER 2018, 11. – 13.04.18, Manchester (UK)

12th Congress of the World Federation of Nuclear Medicine and Biology, 20. – 24.04.2018, Melbourne (Australia), ***https://wfnmb2018.com/***

18th Radiochemical Conference, 13.05 – 18.05.18, Mariánské Lázně (Czech Republic), ***http://www.radchem.cz***

63rd Annual Radiobioassay and Radiochemical Measurements Conference, 20.-25.05.2018, Portland, Maine (USA), ***https://www.rrmc.co/***

X Jornadas Calidad en el control de la radioactividad ambiental, 19. – 22.06.18, Bilbao (Spain), ***http://www.xjornadasradiactividad.com***

Procorad 2018, 20. – 22.06.18, JRC ISPRA VARESE (Italy), ***http://www.procorad.org/***

3rd World Nuclear Exhibition, 26. – 28.06.18, Paris (France), ***https://www.world-nuclear-exhibition.com/***

17th Workshop on Targetry and Target Chemistry (WTTC17), 27. – 31.08, 2018, Coimbra (Portugal), ***http://wttc.triumf.ca/***

13th International Symposium on Nuclear and Environmental Radiochemical Analysis: ERA13, 17. – 20.09.18, Cambridge (UK), ***http://www.rsc.org/events/detail/28219/13th-international-symposium-on-nuclear-and-environmental-radiochemical-analysis-era13***

TrisKem European Users Group Meeting, 21.09.18, Cambridge (UK)

31st Annual Congress of the European Association of Nuclear Medicine (EANM 2018), 13.10. – 17.10.18, Düsseldorf (Germany), ***http://www.eanm.org/congresses-events/future-***

You'll find an update on our participations to conferences on our website :
www.triskem.com

Main applications:

- Ga separation for radiopharmaceutical applications (in combination with ZR Resin)
- U, Pu, Th concentration and separation

Other new products

New products – CU and ZR Resin cartridges.

CU Resin (1 mL and 2 mL) and ZR Resin (0.3 mL, 1 mL and 2 mL) are now also available as ready to use prepacked cartridges. For more information please refer to the respective product sheet on our website.

New product – Zr crucibles.

Rapid NaOH fusion in zirconium crucibles as e.g. published by Sherrod Maxwell et al. [2, 3] is increasingly finding use in the complete dissolution of sample matrices such as soil, sediments or concretes. 250 mL ZR crucibles (including Zr cover) are now available under the reference AC-01-CC250.

Bibliography:

[1] Presentation OP-439, Gagnon et al. : "Cyclotron production and automated new 2-column processing of [^{68}Ga]$GaCl_3$", presented at the EANM'17, 24.10.17 Vienna, Austria
[2] S. Maxwell et al.: "Rapid radiochemical method for determination of actinides in emergency concrete and brick samples", Anal Chim Acta, 701 (2011) 112– 118
[3] S. Maxwell et al.: "Rapid fusion method for determination of actinides in fecal samples", J Radioanal Nucl Chem, 298 (2013), 1533–1542

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