

DIAMEX-SANEX process development studies

X Hérès, C Hill, L Berthon, P Rigaux, E Ameil

▶ To cite this version:

X Hérès, C Hill, L Berthon, P Rigaux, E Ameil. DIAMEX-SANEX process development studies. Atalante 2004 - Advances for future nuclear fuel cycles, Jun 2004, Nimes, France. cea-03541438

HAL Id: cea-03541438 https://cea.hal.science/cea-03541438

Submitted on 24 Jan 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers. L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

DIAMEX-SANEX process development studies

X. Hérès, C. Hill, L. Berthon, P. Rigaux, E. Ameil

Commissariat à l'Énergie Atomique DEN/VRH/DRCP, BP 17 171,30207 Bagnols/Cèze Cedex, France Email : Xavier.heres@cea.fr

Abstract – This paper describes the way adopted to develop DIAMEX-SANEX process. The organic phase contains two extractants : DMDOHEMA extracting actinides(III) from a high nitric acid medium, and the a cationic exchanger for the extraction at lower acidity. Two concepts are studied : in the first one, extractants mixture is used in the whole process, whereas the second route includes a extractant separation step. In that case, only DMDOHEMA is exposed to high-level raffinate and Mo, Zr extraction could be inhibited. In that case, di-alkyl phosphoric acids with 6 carbon atom on branched chains were the more convenient for actinides and extractant separations. They are lipophilic towards aqueous solutions with pH lower than 4, in order to maintained lanthanides in organic phase. They are moreover soluble in basic aqueous solution, so we could recover a organic phase with only DMDOHEMA and TPH.

The route without extractant separation used the well known di-(2-ethyl hexyl) phosphoric acid. The main difficulty in that case, is the management of fission products as molybdenum and zirconium, in order to prevent their stripping with actinides(III) and to back extract them before organic phase recycling. The main goal of theses studies is to carry out experiments useful to elaborate a flowsheet for a genuine hot test on a long duration in 2004.

INTRODUCTION

The first heading of your manuscript must be "INTRODUCTION."

FIRST LEVEL HEADING (HEADING A)

This is the standard font and layout for the individual paragraphs. The style is called "Paragraph." Replace this text with your text. The "Enter" key will take you to a new paragraph. If you need to insert a hard line break within the paragraph, please use Shift+Enter, rather than just tapping the "Enter" key. This is the paragraph spacing that occurs when you use the Enter key.

Second Level Heading (Heading B) with Each Initial Letter of Significant Words Capitalized

Below is an example equation created with Word 97's Equation Editor. To move this equation, highlight the entire line; then use cut and paste to the new location. To use this as a template, select the entire line; then use copy and paste to place the equation in the new location.

$$\frac{d[F_1]}{d\omega_2} = SAm_2 \cos\omega. \tag{1}$$

Third Level Heading (Heading C) with Each Initial Letter of Significant Words Capitalized Below is an example Table I. Following that is an example Fig. 1.

TABLE I. Type Table Name Here.

Column	Column	Column
Header Goes	Header Goes	Header Goes
Here	Here	Here
Row Name	Х	Х
Goes Here		
Row Name	Х	Х
Goes Here		
Row Name	Х	Х
Goes Here		



Fig. 1. Atalante shielded cell.

DESCRIPTION OF THE ACTUAL WORK

RESULTS

REFERENCES

- 1. A.B. NAME, C. NAME, *Book Title*, Publisher Name, Publisher City, pp. 25-30 (1997).
- A.B. NAME, C. NAME, *Journal Title*, 65, 2503 (1994).
- A.B. NAME, C. NAME, "Title of Chapter," in *Book Title*, D.E. NAME, Ed., Publisher Name, Publisher City, pp. 212-213 (1997).