In the European Phebus project severe reactor accidents are studied in pilot scale. The products released during the melting of the fuel are collected in filters which are then leached with acid. The contents of the acid are then fractionated using solvent extraction and the nuclide concentrations determined by radiometrical methods (α- and γ-spectrometry, and liquid scintillation counting) and ICP-MS. The contribution will describe the used analysis scheme in detail. Experimental errors and uncertainties will also be discussed.

385 LIQUID-LIQUID EXTRACTION APPLIED TO ONE-ATOM-AT-A-TIME STUDIES OF TRANSACTINIDE ELEMENTS. G. Skarnemark*, C. Ekberg,
Nuclear Chemistry, Department of Materials and Surface Chemistry, Chalmers University of Technology, S-412 96 Göteborg, SWEDEN

Liquid-liquid extraction is one of the methods that is used for one-atom-at-a-time separations of transactinide elements from heavy-ion reaction product mixtures. It is suitable for this purpose because it is fast, provided that a chemical system with negligible kinetics is used, and it can be used for continuous separations. It is, however, not quite easy to determine the uncertainties of the measured distribution coefficients or complex formation constants. In this paper methods for such estimates will be discussed.

388 IODINE DAILY DIETARY INTAKE IN A GROUP OF BRAZILIAN WORKERS. , V.A. Maihara[1], P.L.C. Moura[1], D.I.T.Fávaro[1], M.B.A.Vasconcellos[1] [1]Radiochemistry Division, Instituto de Pesquisas Energéticas e Nucleares, IPEN/CNEN-SP, SP, BRAZIL

Iodine is an essential constituent of the thyroid hormones thyroxine (T_4 and T_3). The main role of iodine in nutrition arises from the important part played by the thyroid hormones in the growth and development of humans and animals. The recommended dietary allowance (RDA) for adult men and women is 150 μg/day and the tolerable upper intake level (UL) for adults is 1,100 μg/day. Low iodine levels in the diet lead to iodine deficiency disorders. Iodine deficiencies can be prevented or reduced by increasing of its dietary intake through fortification of food. There is an intensive international effort to fortify the cooking salt with iodine in several countries, including Brazil. In this study, iodine dietary intake was evaluated through determination of iodine in duplicate portion diet samples by epithermal neutron activation. The collection of samples was carried out in a group of twenty-six workers from a steel industry of São Paulo city. The 3 day-diet samples were prepared by freeze-drying process in an industrial freeze dryer and mixed and homogeneized in a domestic blender. Epithermal neutron activation analysis (ENAA) was employed to reduce the main interferentes present in the diet samples, such as Na and Cl. Three NIST reference materials: RM 8435 Whole Milk Powder, SRM 1549 Non Fat Milk Powder and SRM 1548a Typical Diet were analyzed for validation of the methodology. The average daily dietary intake found for worker's group was 840 μg/day, ranging from 400 to 1540 μg /day. Some of the daily iodine intakes were about 10 times higher than the RDA value.

389 INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS APPLIED TO THE CHEMICAL COMPOSITION OF METALLIC MATERIALS WITH STUDY OF INTERFERENCES. E. G. Moreira*1, M. B. A. Vasconcellos1, M. Saiki1. 1 Centro do Reator de Pesquisas, Instituto de Pesquisas Energéticas e Nucleares, São Paulo, SP 05508-000, BRAZIL.

Instrumental Neutron Activation Analysis was used to evaluate the chemical composition of iron, steel, silicon and ferrosilicon reference materials. Samples were irradiated at 10^{12} n cm^{-2} s^{-1} flux at IEA-R1 Research Nuclear Reactor at IPEN for 30 min for long lived radionuclides and 30 s for short lived ones. Induced radioactivity was measured in a CANBERRA gamma ray spectrometer for suitable periods of time after appropriate sample decay. The concentration of As, Co, Cr, Mn, Mo, Ni, V and W were analyzed in the iron and steel samples whereas As, Br, Co, Cr, K, Eu, Fe, La, Mn, Mo, Na, Nd, Sb, Sc, Sm, Tb Th, U, V, W and Yb were determined in silicon and ferrosilicon samples. Method validation was