CHROMIUM FLUENCE MEASUREMENTS IN GENESIS SAMPLES USING A NANOSIMS. J Wang, L. R. Nittler1, M. Humayun2 and D. S. Burnett3. 1Dept. Of Terrestrial Magnetism, Carnegie Institution of Washington. E-mail: jwang@ciw.edu. 2Florida State University, 3Caltech.

**Introduction:** Our Sun holds most of the mass of the Solar System (99.9%) and its chemical and isotopic composition thus provides the reference standard for astronomical, cosmochemical and geochemical studies. The Genesis mission returned solar wind implanted samples for studying solar wind composition. Previous studies of solar wind Cr fluence in Genesis samples showed over-estimates of it due to surface contamination [1-2]. We analyzed three different Si target samples (60040, 30877 and 60490) by NanoSIMS. With smaller analysis area (10-15 μm² in a 30μm² rastered area) and meticulous cleaning procedures (sample 60490) [3], the surface contamination of Cr can be avoided. We obtained an average Cr fluence value 3.3±1.1×10¹⁰atom/cm² (2σ).

**Analytical Methods:** We measured positive secondary ions of ²⁴Mg, ²⁵Mg, ²⁶Mg, ³⁰Si, ⁵²Cr, ⁵⁶Fe and ⁵⁷Fe simultaneously using a Cameca NanoSIMS 50L ion microprobe at Carnegie Institution of Washington. The 16 keV O⁺ primary beam was rastered over 30 μm² areas, with signal collection only from the central 10 and 15μm² region to avoid crater edge effects. The primary beam intensity was around 200pA with a size of 2-3μm. Each analysis took a little over one hour with 250 measurement cycles. Ratios of ⁵²Cr/³⁰Si were averaged in every 5 cycles and summed and the beginning 8 minutes of transient period were not included in the final data. This result was compared with the average results of 3 analyses of a ⁵²Cr implant standard (3×10¹³ atm/cm²) to obtain the solar wind implanted ⁵²Cr fluence. Three different Genesis samples (60040, 30877 and 60490) were measured with a total of 20 analyses. Sample 60490 was carefully cleaned with the hot aqua regia cleaning procedure at the Florida State University [3].

**Results:** The photospheric Cr/Mg ratio is 0.0126 [4]. Thus, taking the Genesis Mg fluence to be 2.15×10¹² atom/cm² [5] and considering the terrestrial isotopic abundance of ⁵²Cr (83.8% of total Cr) gives an expected fluence for ⁵²Cr of 2.3×10¹⁰ atom/cm². We obtain average ⁵²Cr fluences for 60040, 30877 and 60490 of 7.3, 2.8 and 1.3×10¹⁰ atom/cm². The average fluence of 3.3×10¹⁰±1.1 atom/cm² is in good agreement with the expected fluence and with a previous SIMS measurement [6]. Since, in order to avoid transient sputtering effects, we did not include the beginning 8 minutes of data, we might have under-determined the ⁵²Cr solar fluence especially in the extremely cleaned sample 60490. The somewhat higher value for 60040 is mostly surface contamination. Clearly, obtaining more accurate analyses of the ⁵²Cr fluence requires not only careful cleaning of the sample surface, but also understanding, reduction of the transient effects at the beginning of the data collection and accurate ⁵²Cr implant standards. Mg and Fe isotopic data will be presented at the conference.