

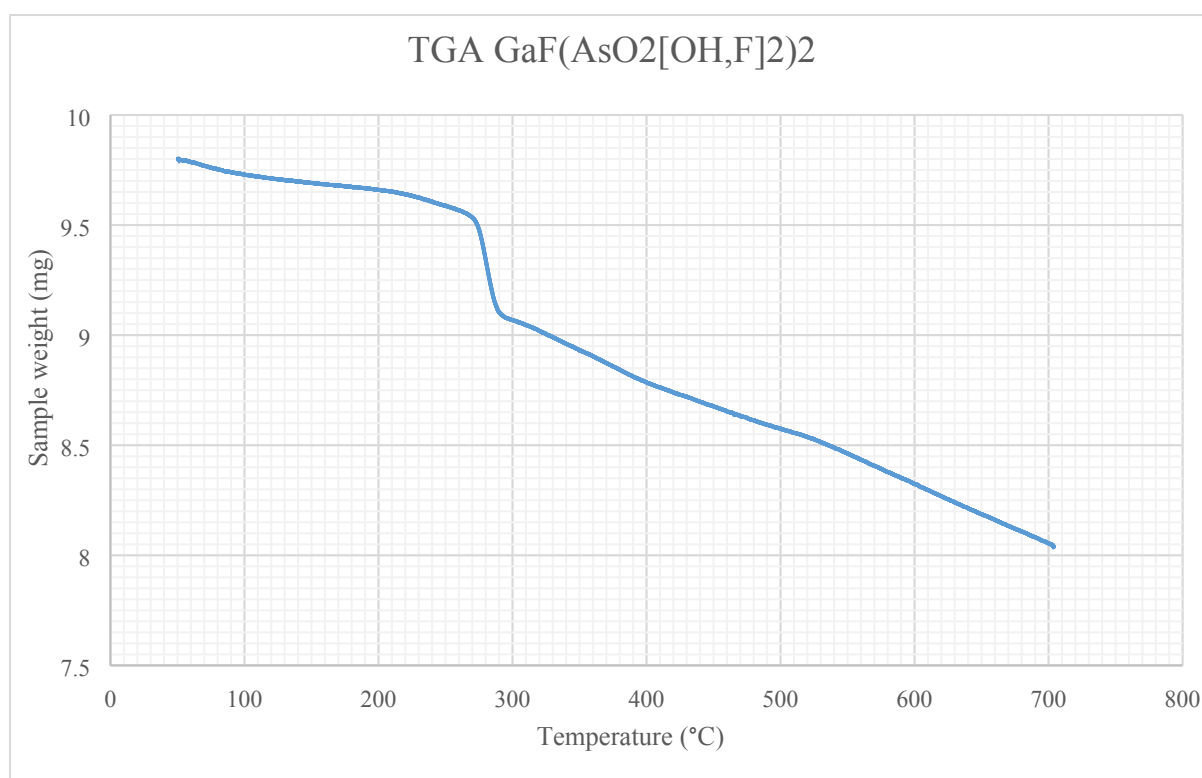
## Supplementary Information

### Gallium fluoroarsenates

Keyleigh L. Marshall, Jennifer A. Armstrong and Mark T. Weller

Thermogravimetric analyses (TGA) were carried out on a Perking Elmer TGA 4000 with auto sampler.

Powder X-ray diffraction (PXRD) studies were carried out on a Siemens D5000 diffractometer operating Cu K $\alpha$  radiation ( $\lambda = 0.154$  nm) coupled to a scintillation counter detector. Samples were mounted on a silicate glass holder and scanned on a  $2\theta$  scale from 5-70° with a scan speed of 2° per minute at room temperature. Database searches were carried out on powder patterns obtained and phases identified were then compared with simulated patterns from single crystal data for GaAs and GaAsO<sub>4</sub>.

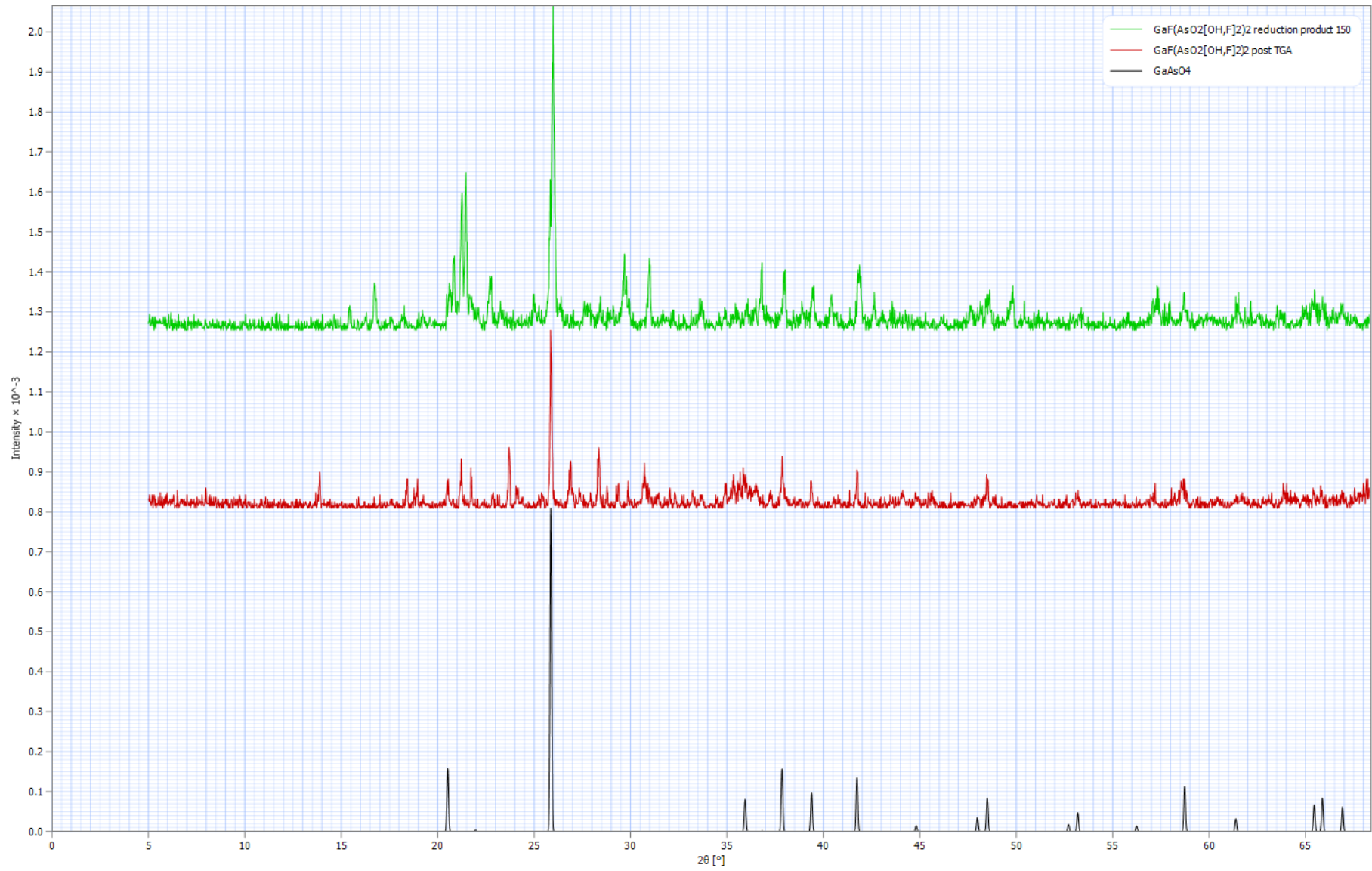


% by formula mass for each element:

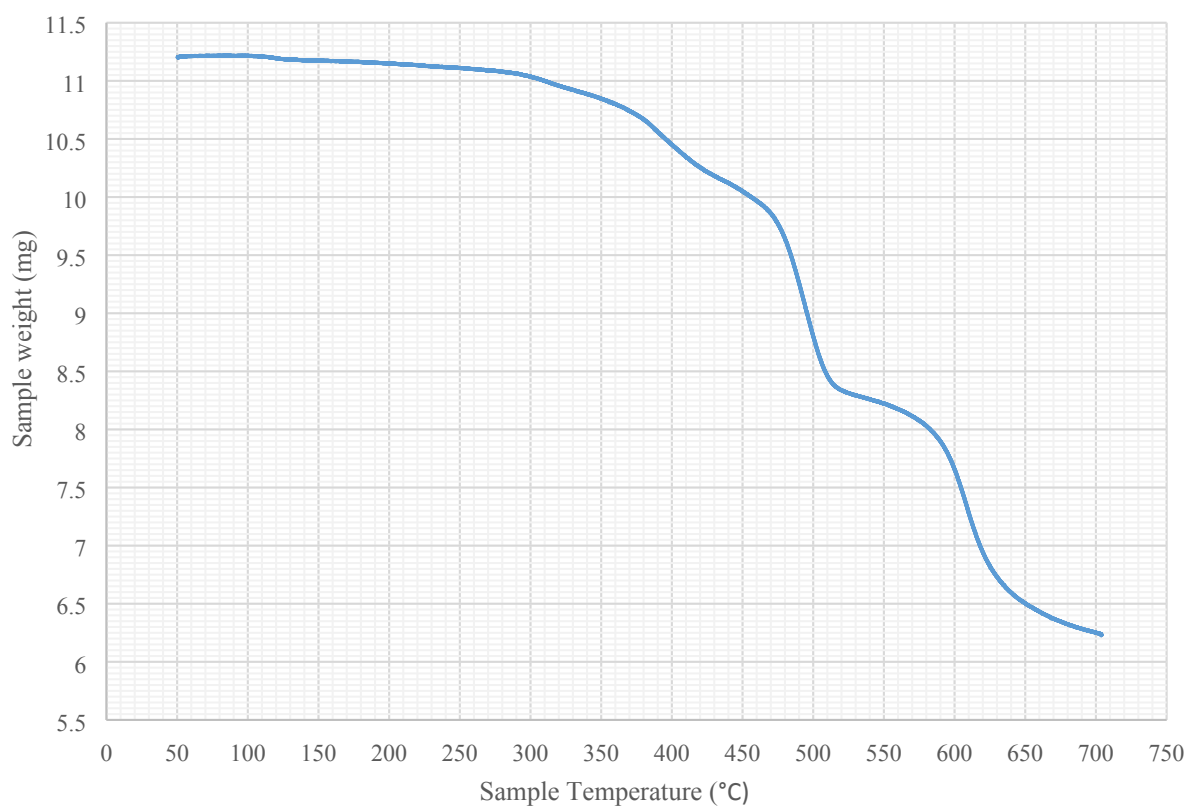
Ga%	As%	O%	F%
18.41829	39.58336	16.90543	25.09292

% by mass loss at 270 °C: 4.593 %

% by mass loss overall (50-700 °C): 17.96 %

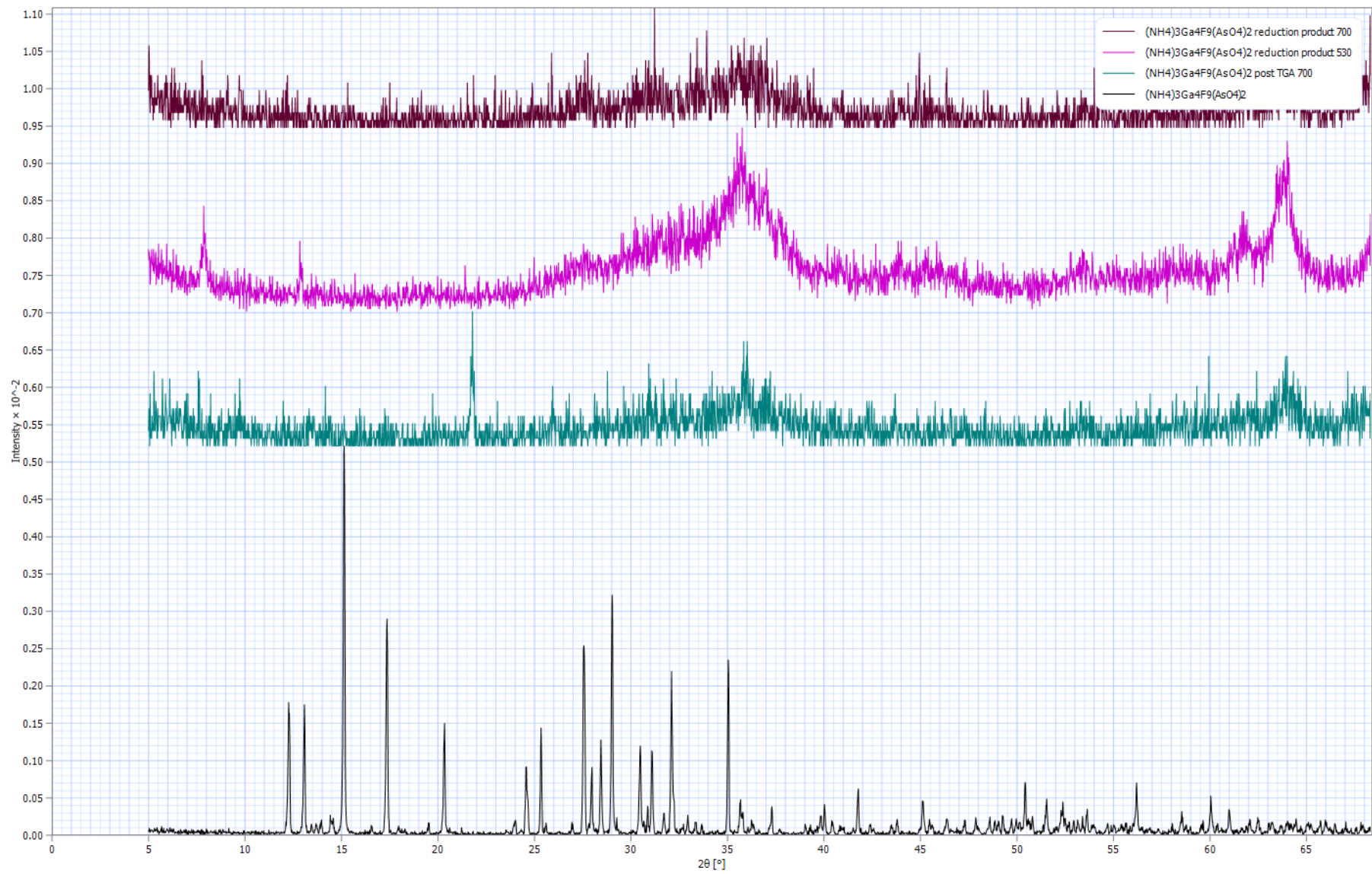


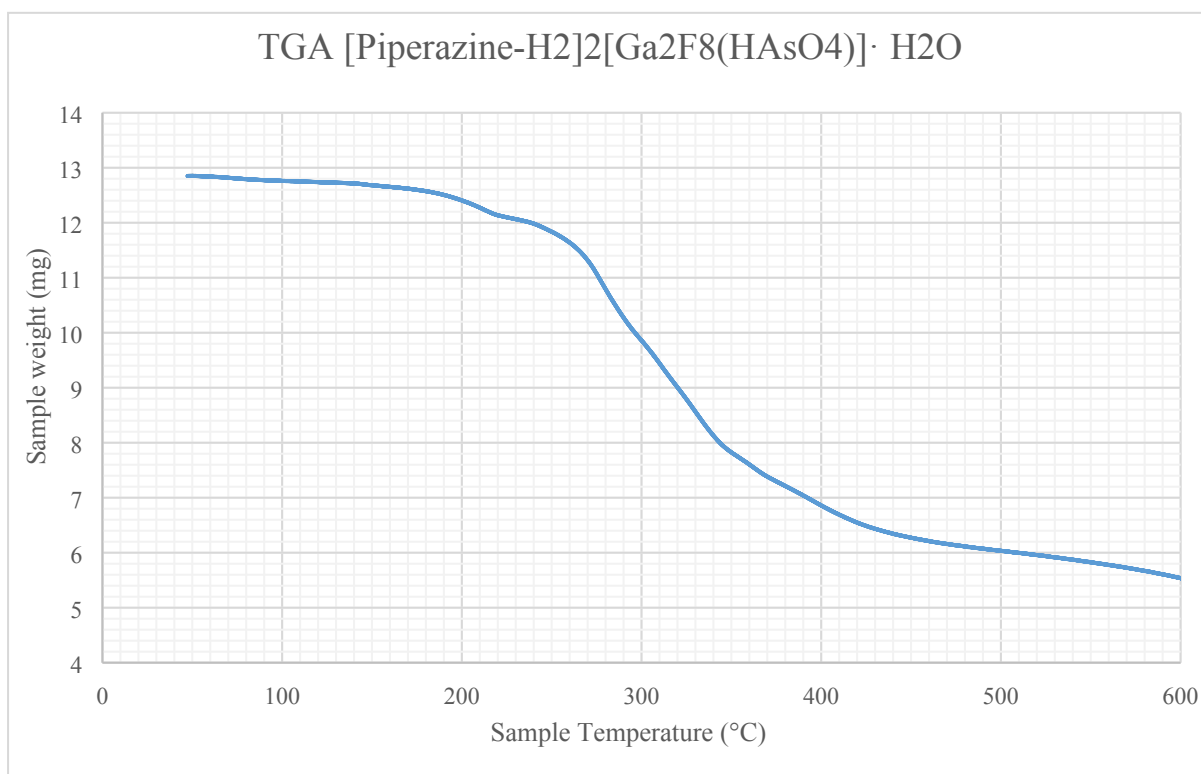
### TGA (NH<sub>4</sub>)<sub>3</sub>Ga<sub>4</sub>F<sub>9</sub>(AsO<sub>4</sub>)<sub>2</sub>



% by formula mass for each element:

N%	H%	Ga%	As%	F%	O%
5.37472	1.54561	35.67183	19.16588	21.86954	16.37089

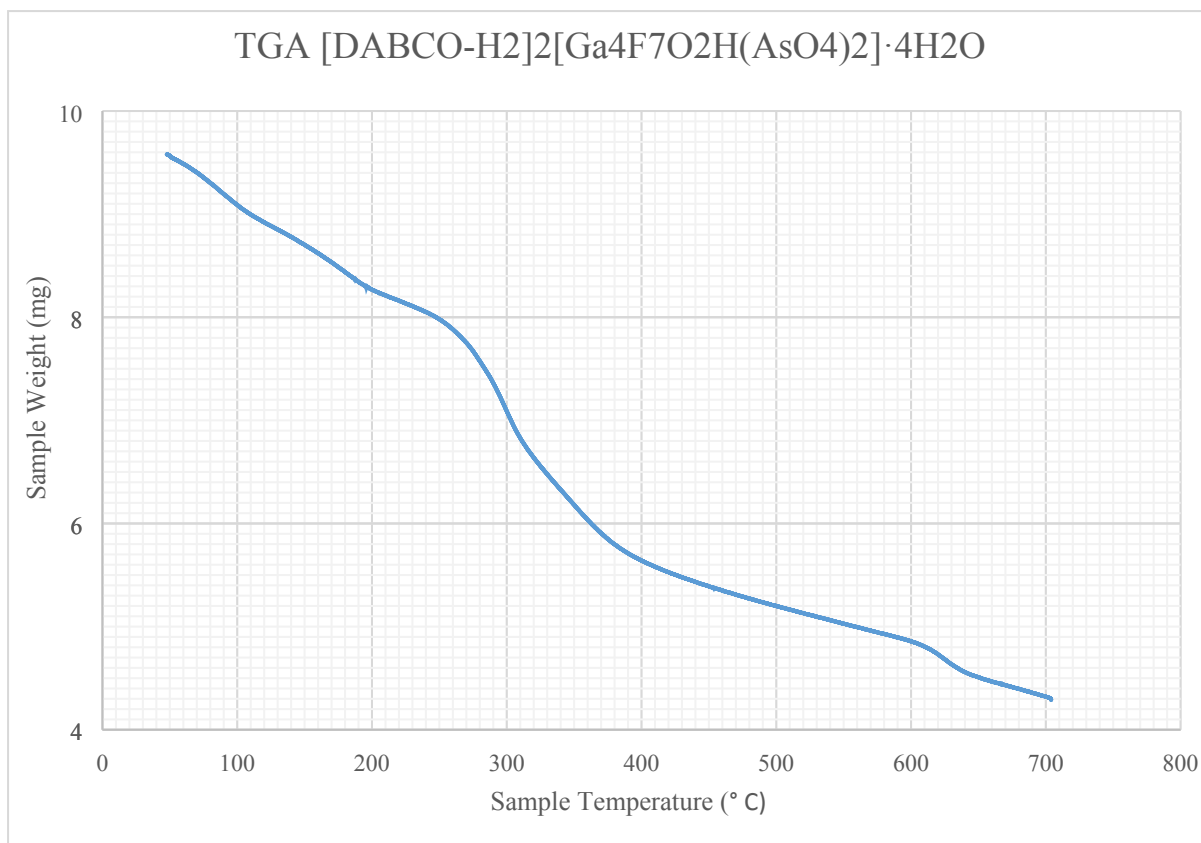




% by formula mass for each element:

N%	C%	H%	Ga%	As%	F%	O%
9.01330	15.45780	3.72594	22.43286	12.05280	24.44986	12.86890

% by mass loss overall (50-600 °C): 57.14 %



% by formula mass for each element:

N%	C%	Ga%	As%	F%	O%	H%
5.54160	14.25577	27.58458	14.82073	13.15335	22.15395	2.49000

% by mass loss overall (50-700 °C): 55.21 %

