This recipe segments nanoparticles of different elements from an EDS map. Each element is segmented individually with a given output in the recipe (3 outputs). Then each labeled particles map is used to measure the distribution of the particles. Each distribution is then layed out in the same histogram.

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| **Step** | **Name** | **Purpose** | **Sensitive to spatial resolution** |
| 1 | Reference | Reference image. |  |
| 2 | Gaussian Filter | Is intended to behave as a low pass filter to smooth the image. That will ease the thresholding step to come up. | Yes |
| 3 | Convert Image Type | Allows to extract the red channel for further combination. |  |
| 4 | Reference Change | Reference image |  |
| 5 | Convert Image Type | Allows to extract the green channel for further combination. |  |
| 6 | Reference Change | Reference image |  |
| 7 | Convert Image Type | Allows to extract the blue channel to analyze Cl |  |
| 8 | Hysteresis Thresholding | Threshold on Cl. The hysteresis thresholding allows to propagate the threshold to pixels above the lower threshold if they are connected to pixels selected by the highest threshold. This procedure allows to threshold full particles while avoiding noise. |  |
| 9 | Binary Smoothing | Smooth the contours of binary objects |  |
| 10 | Separate Objects | Is intended to try to separate circular objects based on a distance map calculation. | Yes |
| 11 | Labeling | Assign a label number to each set of connected pixels. |  |
| 12 | Reference Image | step 3 - Convert Image Type - red channel |  |
| 13 | Subtract Image | Combine red and green channels to extract Au. |  |
| 14 | Hysteresis Thresholding | Threshold Au. The hysteresis thresholding allows to propagate the threshold to pixels above the lower threshold if they are connected to pixels selected by the highest threshold. This procedure allows to threshold full particles while avoiding noise. |  |
| 15 | Binary Smoothing | Smooth the contours of binary objects |  |
| 16 | Separate Objects | Is intended to try to separate circular objects based on a distance map calculation | Yes |
| 17 | Labeling | Assign a label number to each connected set of pixels |  |
| 18 | Reference Image | step 5 - Convert Image Type - green channel |  |
| 19 | Subtract Image | Combine green and blue channel to extract Ni. |  |
| 20 | Hysteresis Thresholding | Threshold Ni. The hysteresis thresholding allows to propagate the threshold to pixels above the lower threshold if they are connected to pixels selected by the highest threshold. This procedure allows to threshold full particles while avoiding noise. |  |
| 21 | Binary Smoothing | Smooth the contours of binary objects |  |
| 22 | Separate Objects | Is intended to try to separate circular objects based on a distance map calculation. | Yes |
| 23 | Labeling | Assign a label number to each connected set of pixels. |  |