

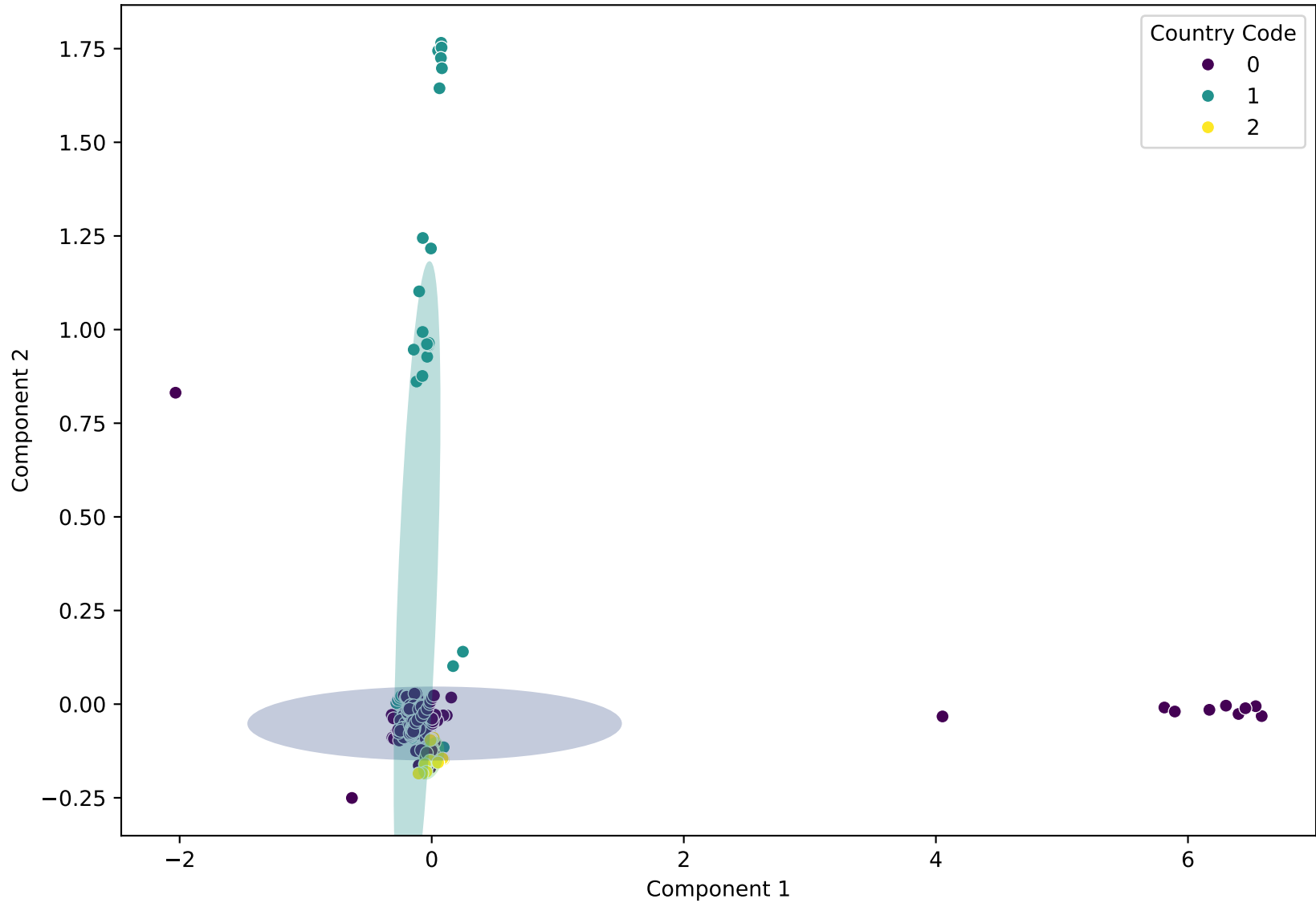
Clustering Analysis Report

This report evaluates different preprocessing methods and their effectiveness in clustering FTIR spectral data.

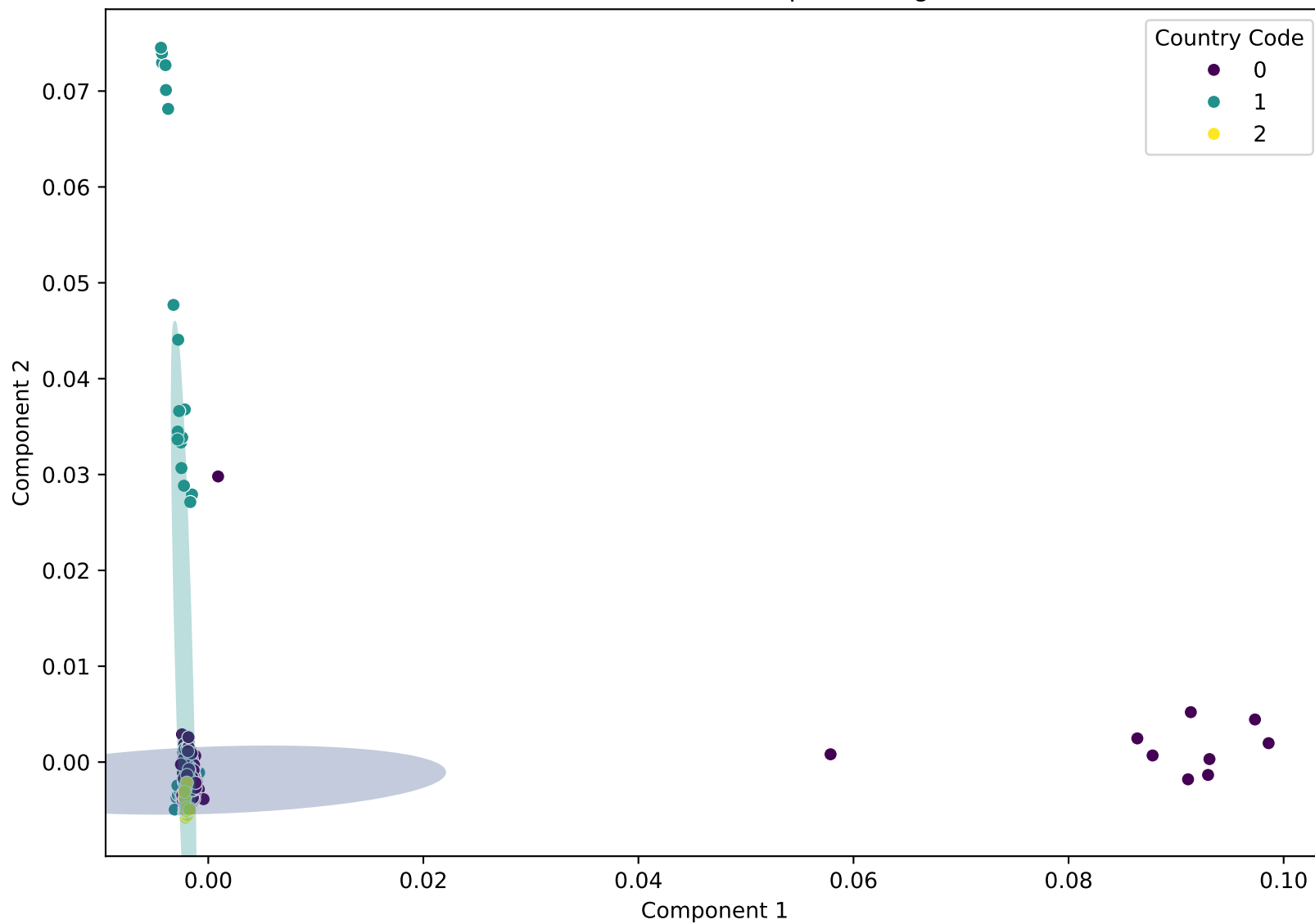
Evaluation Metrics

Preprocessing Method	Explained Variance Ratio	Silhouette Score
UV-SNV	[0.74424535 0.25575465]	-0.09517577786552014
UV-MSD	[0.74424535 0.25575465]	-0.09517577786552014
UV-1-der	[0.59533786 0.40466214]	-0.40878989274294025
UV-2-der	[0.67562521 0.32437479]	-0.4911954618496906
Par-MSD	[0.74424535 0.25575465]	-0.09517577786552028

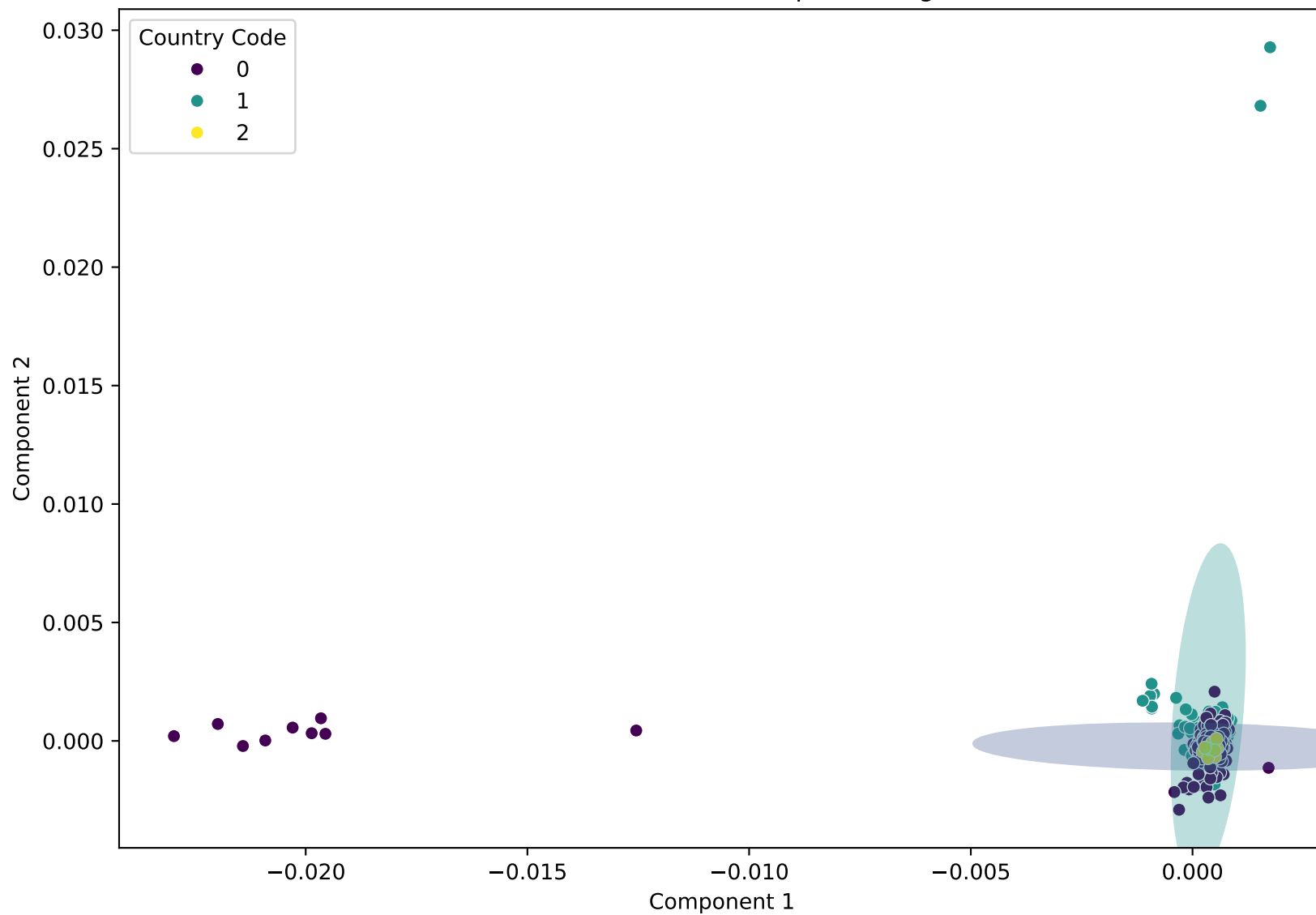
PCA without Preprocessing



PCA with UV-1-der Preprocessing



PCA with UV-2-der Preprocessing



Conclusions

Based on the evaluation metrics, UV-1-der and UV-2-der preprocessing methods provide the best clustering results.
PCA without preprocessing also performs well.