Supporting Information for: Artificial intelligence and thermodynamics help solving arson cases

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This Supporting Information contains the following:

- Figures showing the effect of temperature on the evaporation behavior of a sixty component gasoline mixture (Figure S1 to S5)
- Figures showing the deviation in the back traced initial composition of a 50% weathered sample and the unweathered sample (Figure S6 to S44)
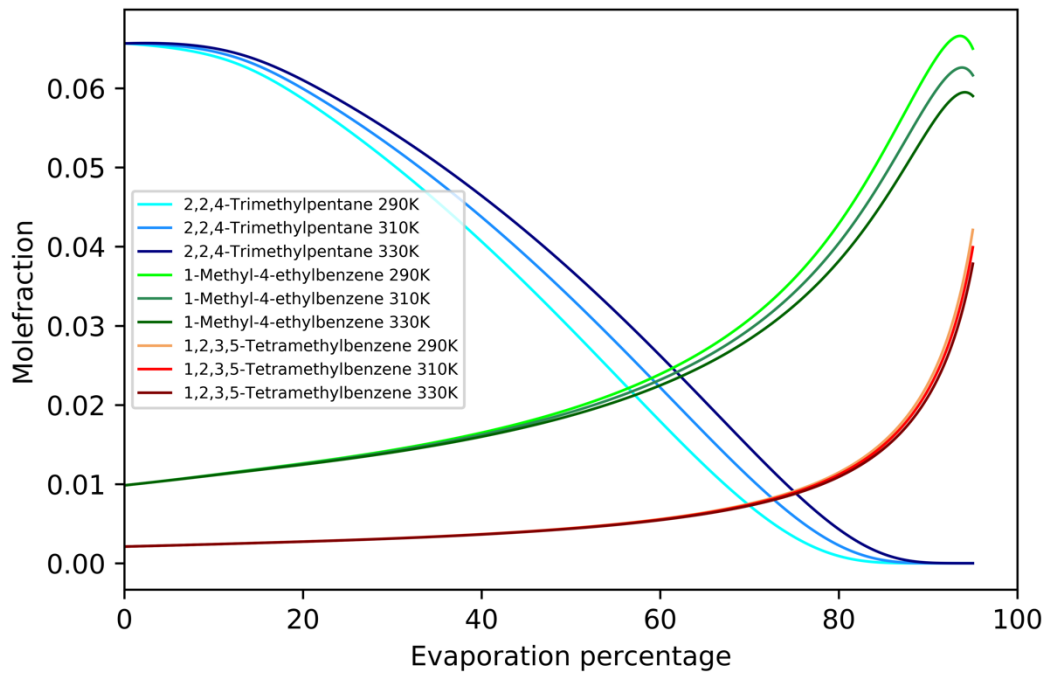
Figure S 1. Effect of temperature on the evaporation of a sixty component gasoline mixture. Evaporation curves of some selected components are shown.
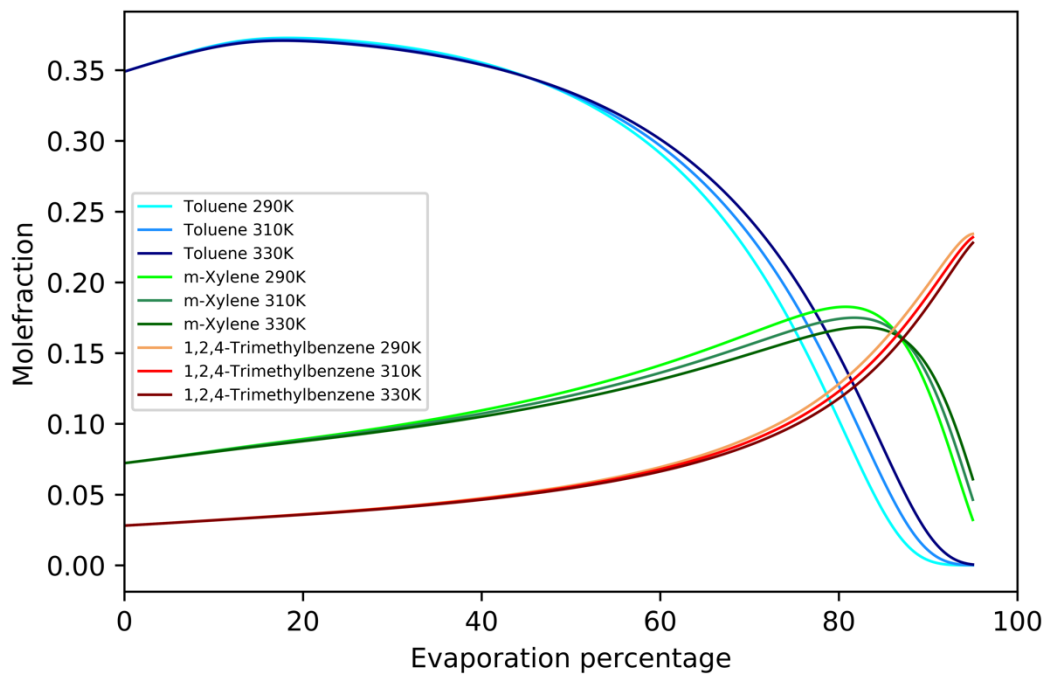
Figure S 2. Effect of temperature on the evaporation of a sixty component gasoline mixture. Evaporation curves of some selected components are shown.
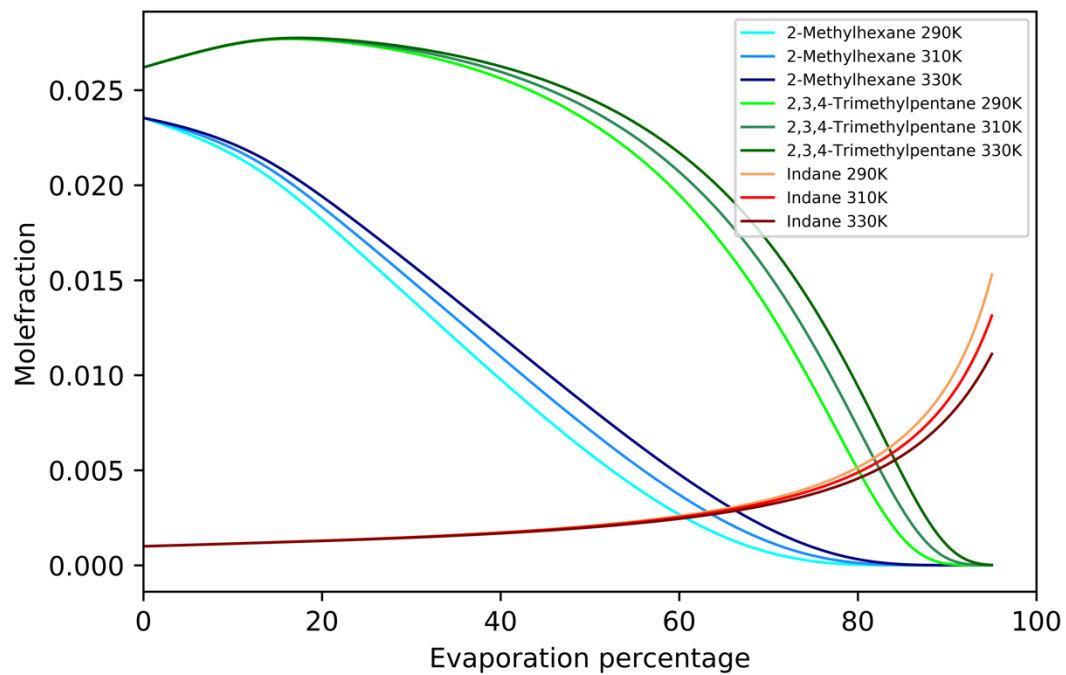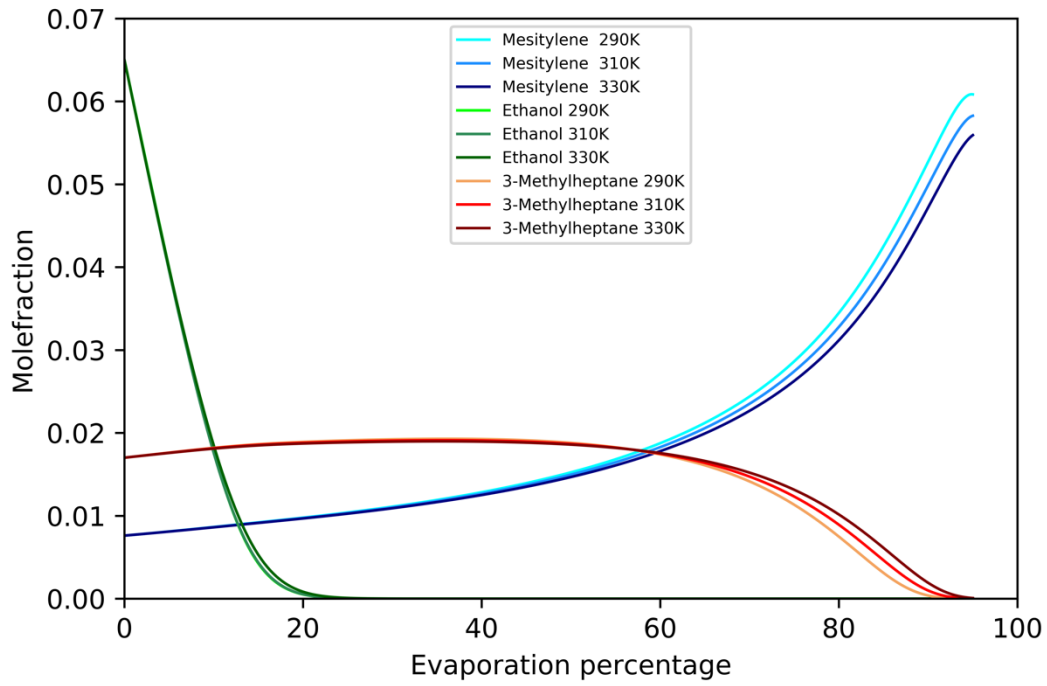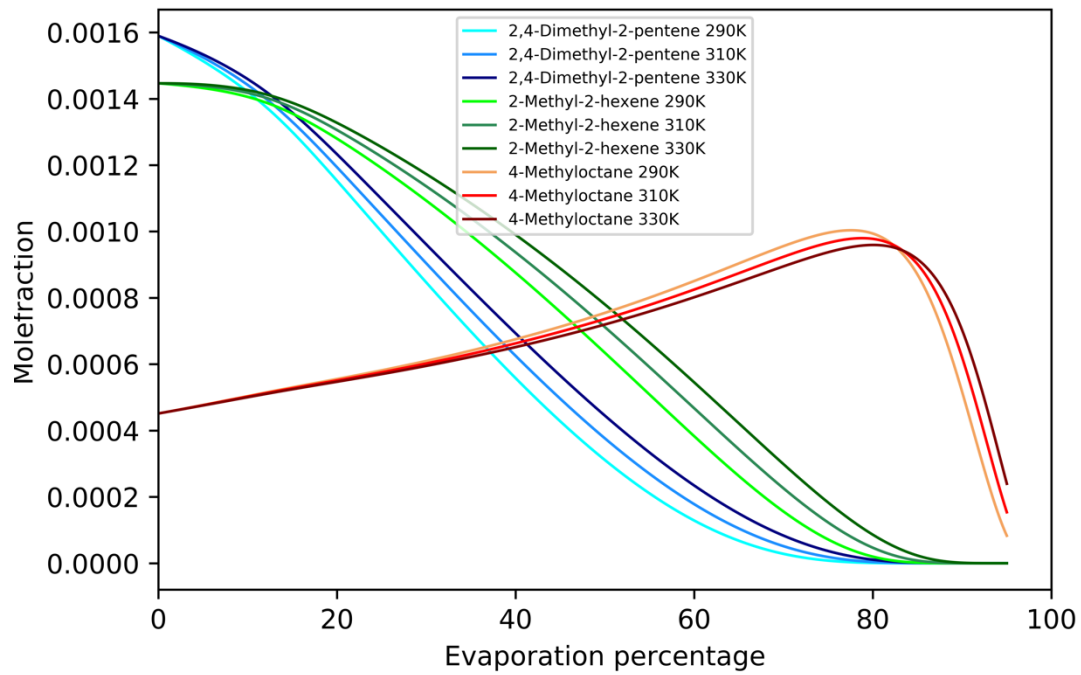
Figure S 3. Effect of temperature on the evaporation of a sixty component gasoline mixture. Evaporation curves of some selected components are shown.
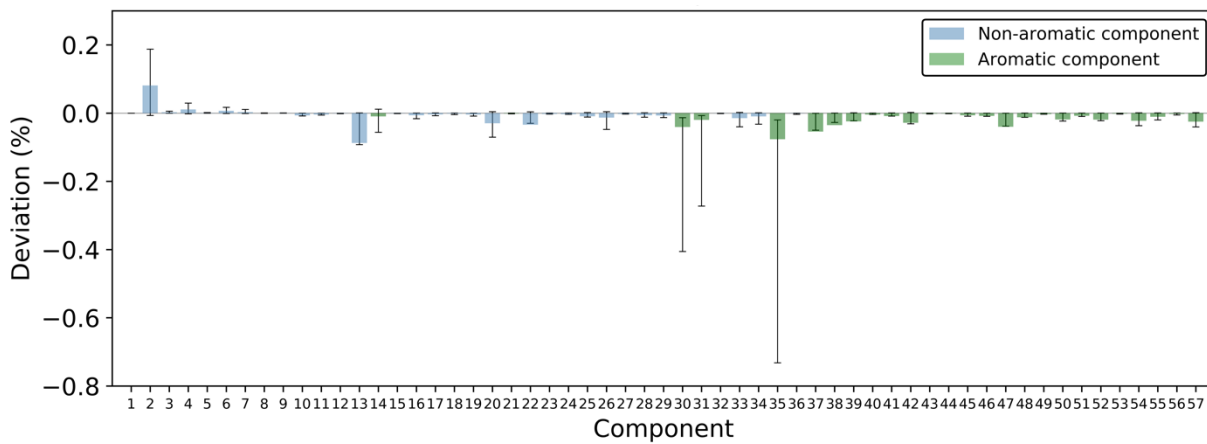
Figure S 4. Effect of temperature on the evaporation of a sixty component gasoline mixture. Evaporation curves of some selected components are shown.

Figure S 5. Effect of temperature on the evaporation of a sixty component gasoline mixture. Evaporation curves of some selected components are shown.

Figure S 6. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 400.
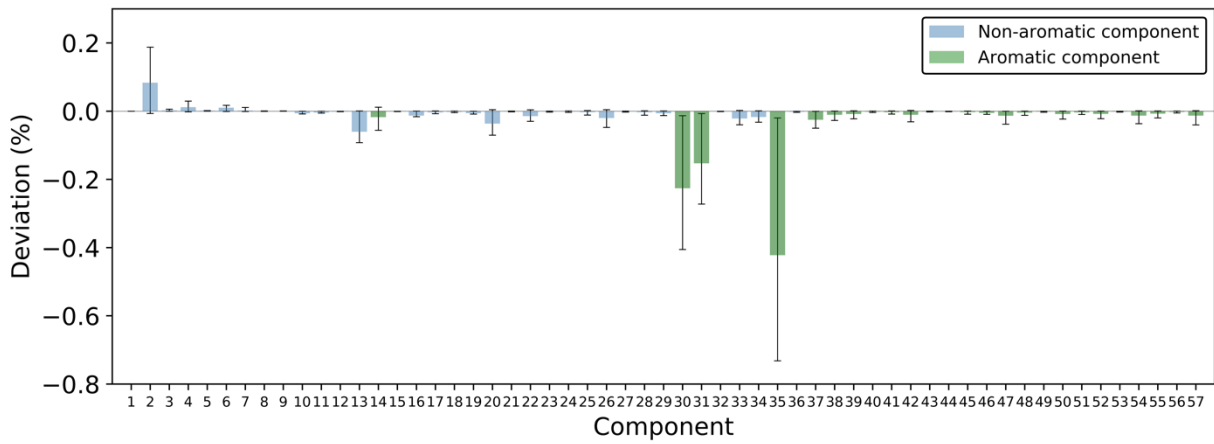
Figure S 7. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 401.
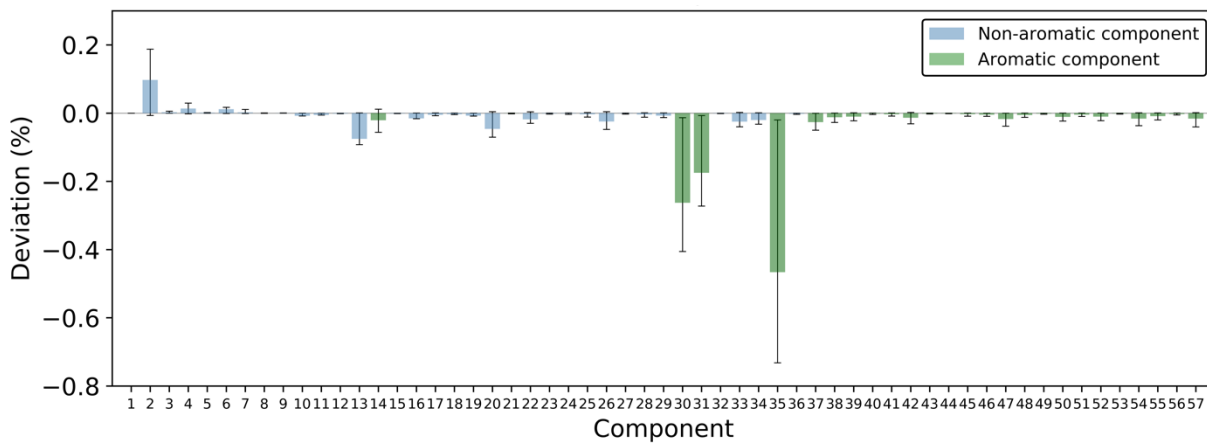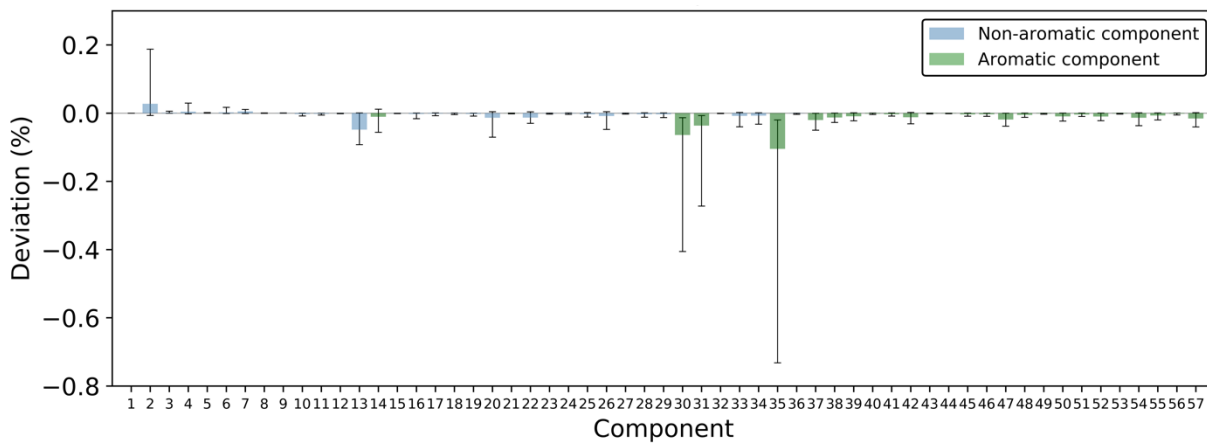
Figure S 8. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 402.

Figure S 9. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 403.
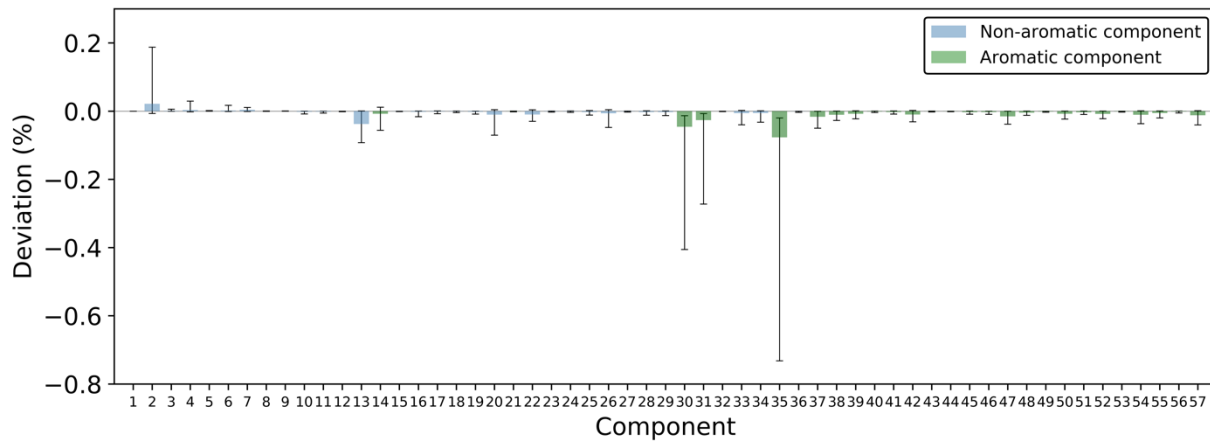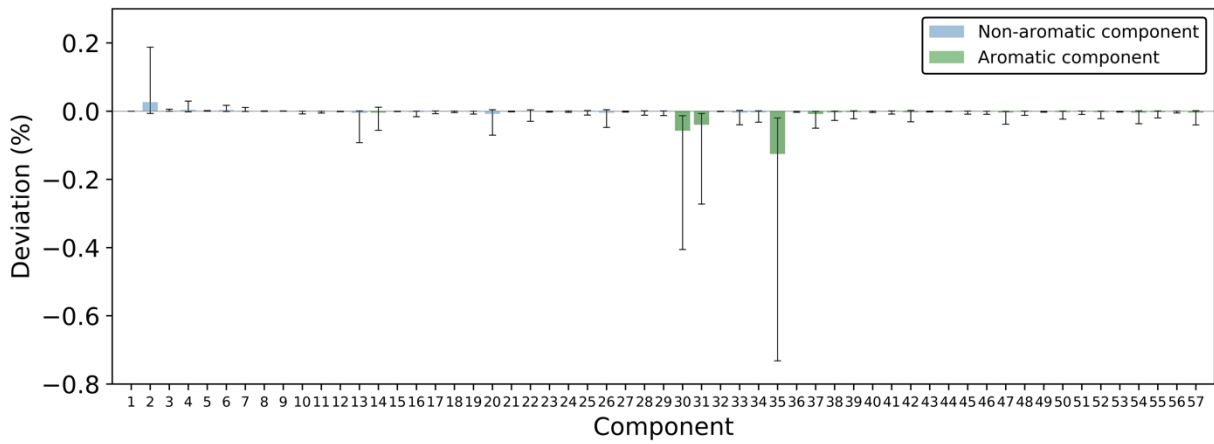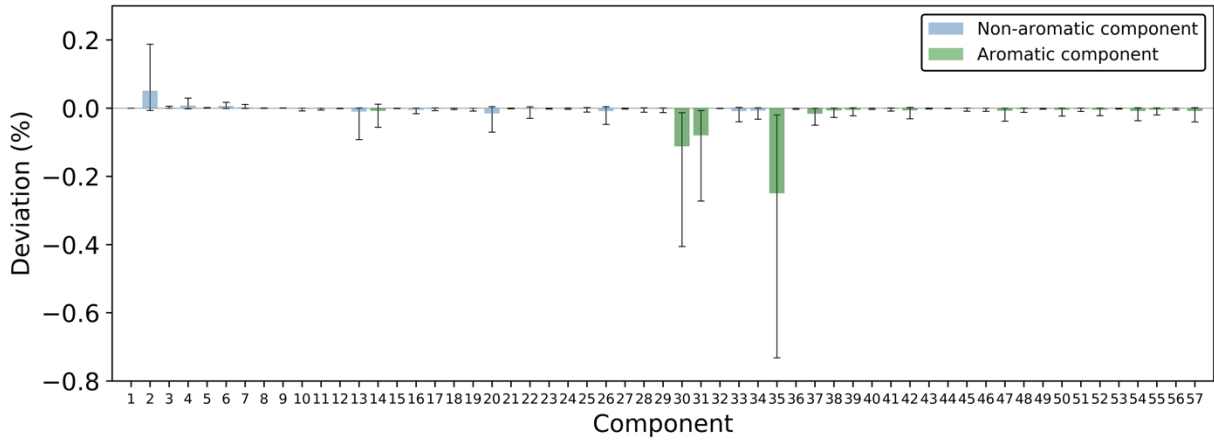
Figure S 10. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 404.
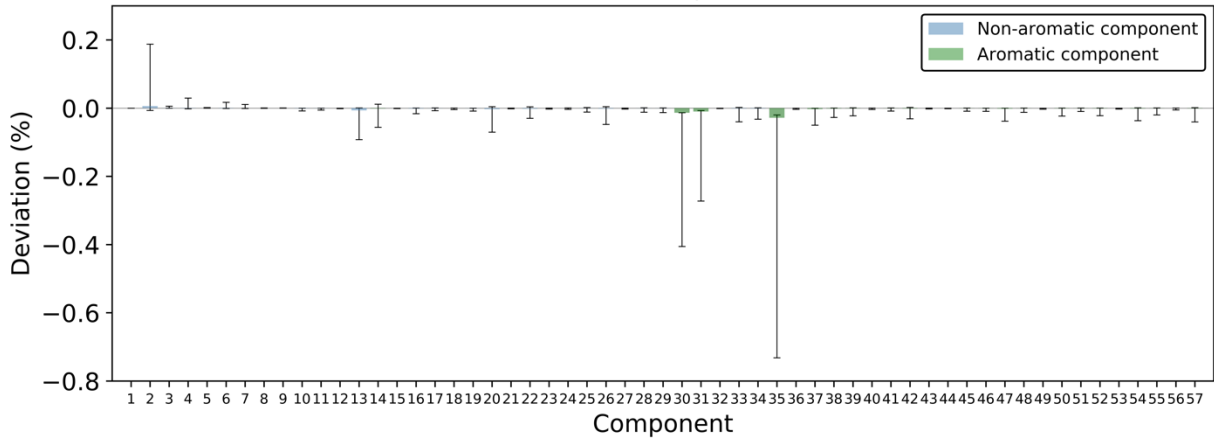
Figure S 11. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 405.

Figure S 12. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 406.

Figure S 13. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 407.
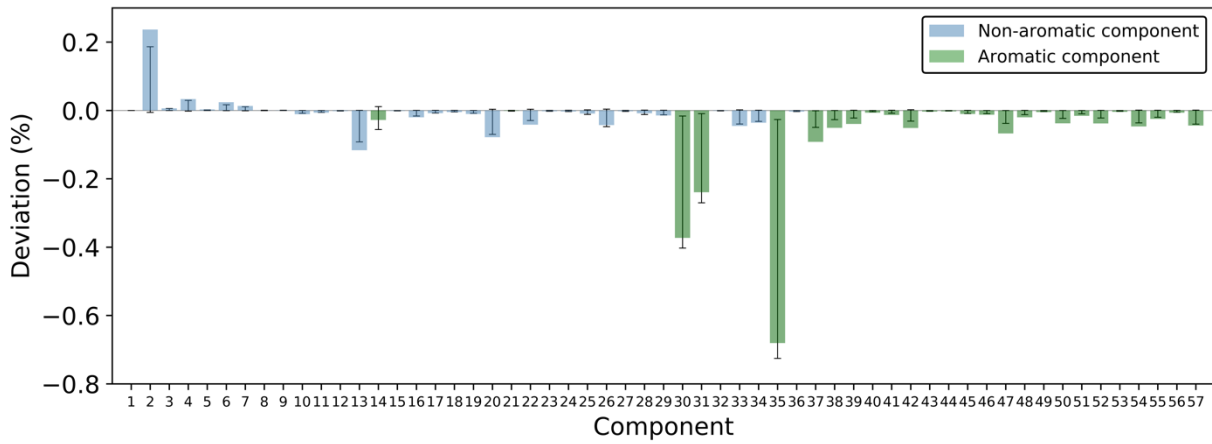
Figure S 14. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 408.
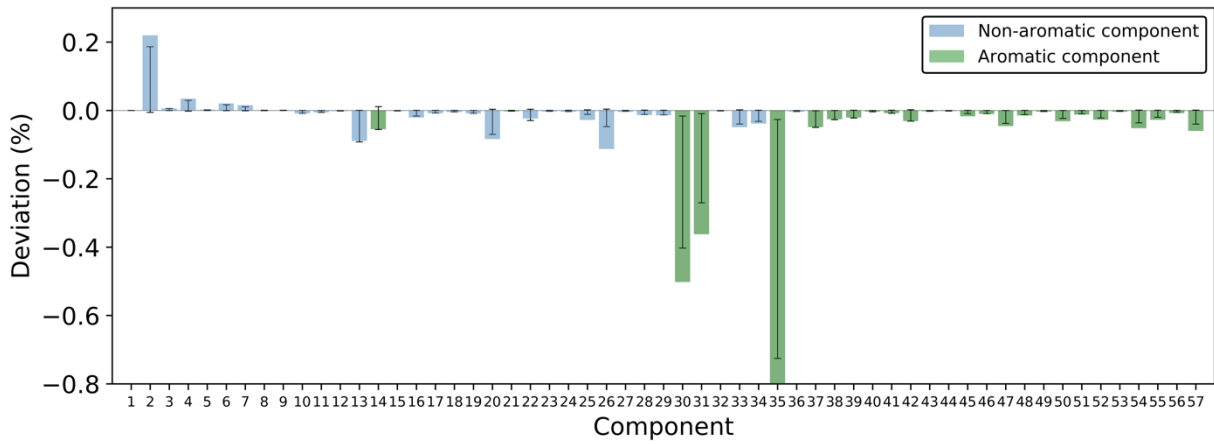
Figure S 15. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 409.
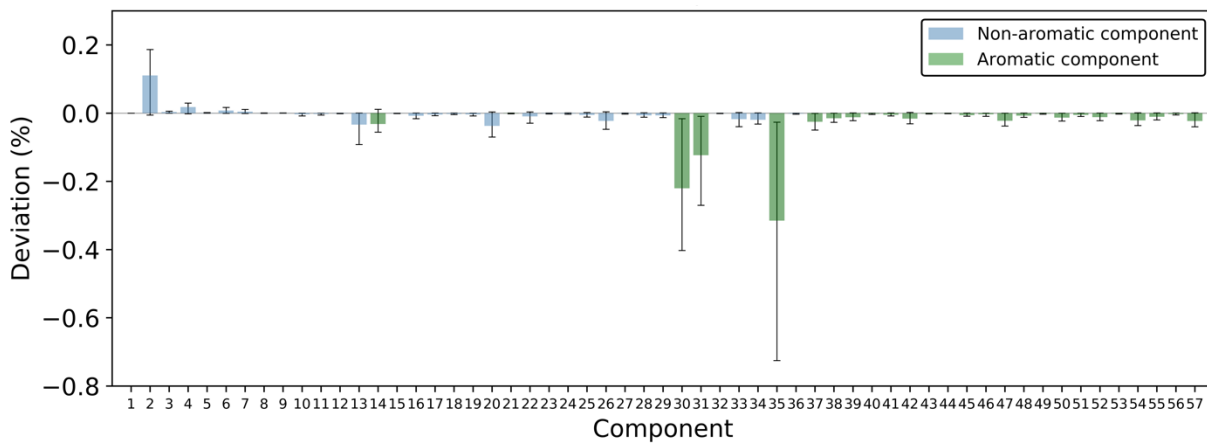
Figure S 16. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 410.
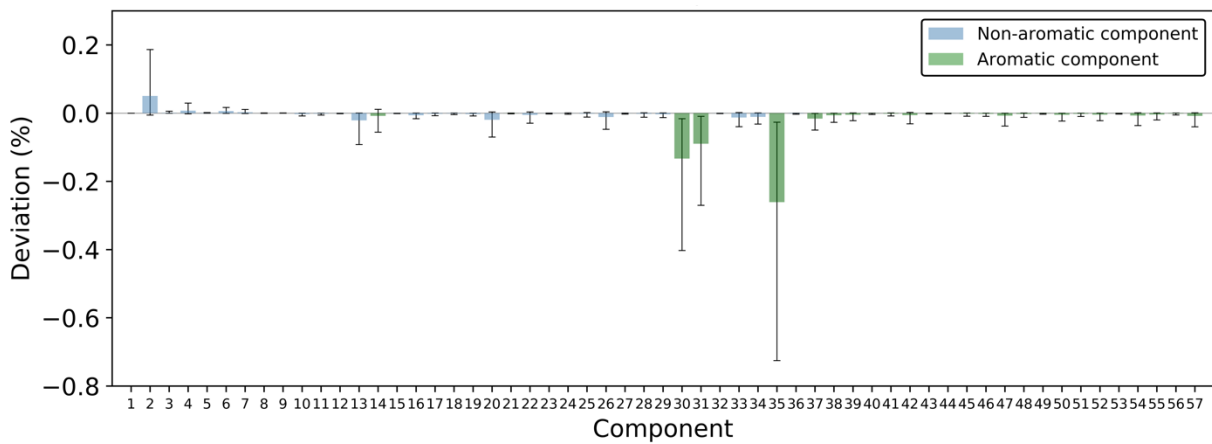
Figure S 17. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 411.
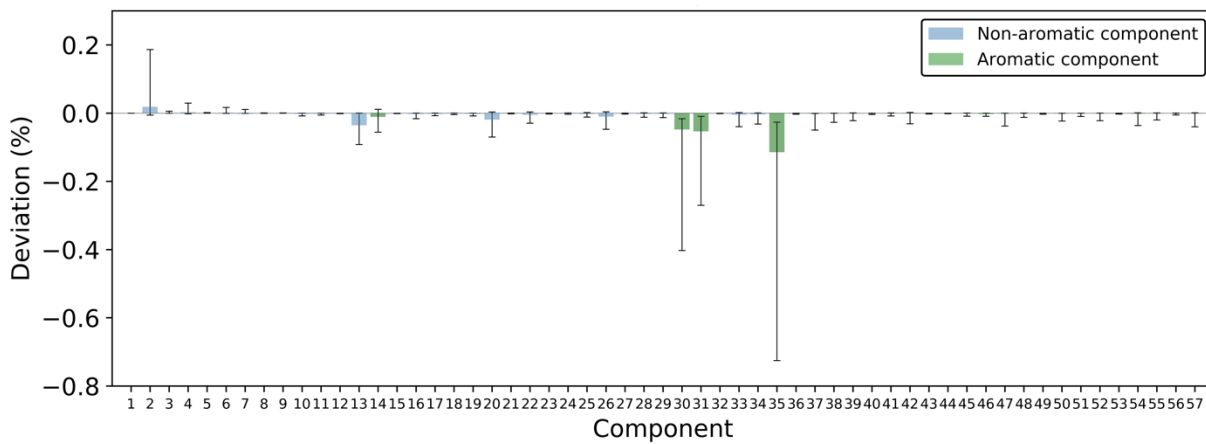
Figure S 18. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 412.
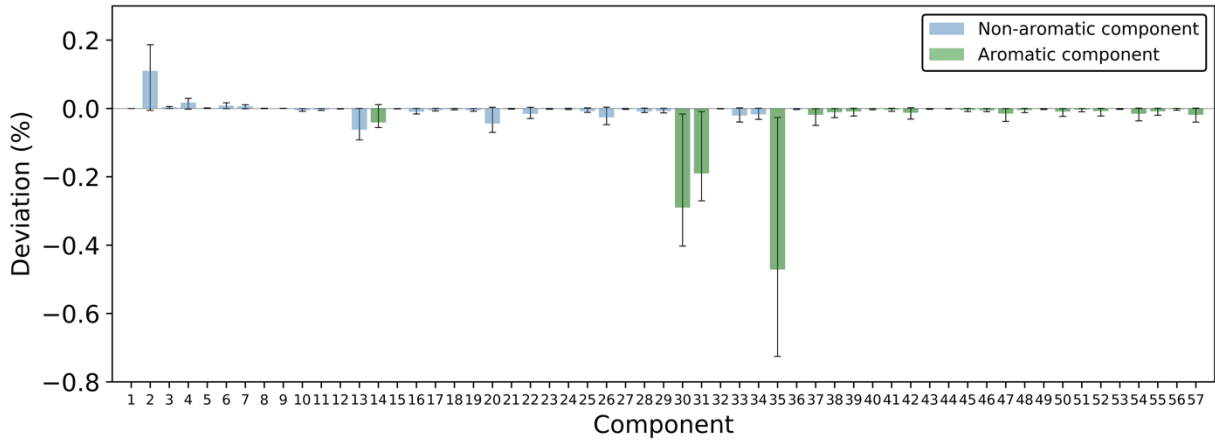
Figure S 19. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 413.
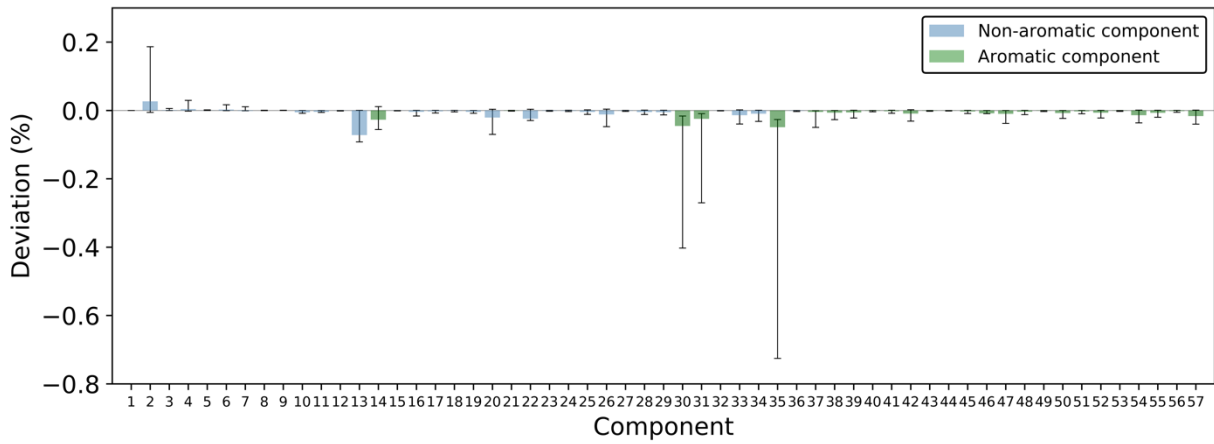
Figure S 20. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 414.
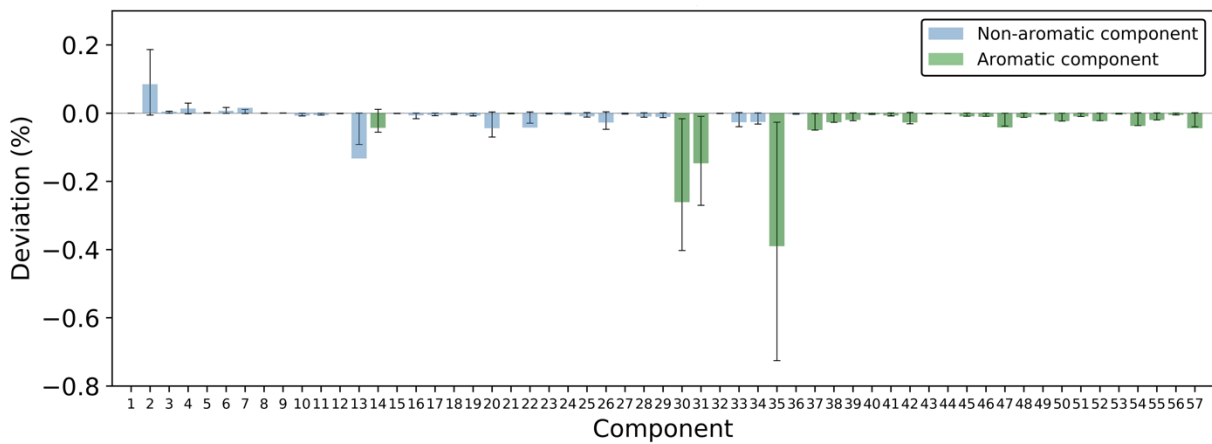
Figure S 21. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 415.
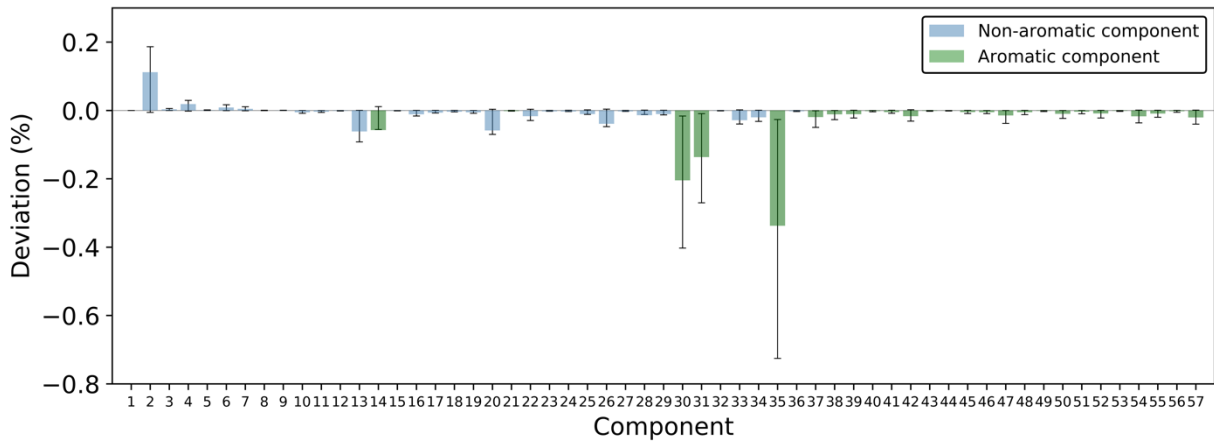
Figure S 22. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 416.
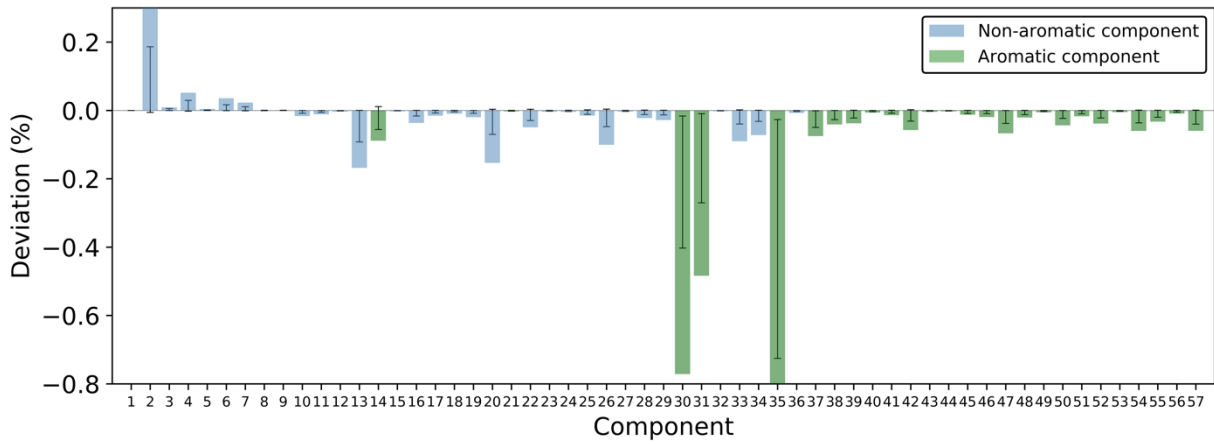
Figure S 23. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 417.
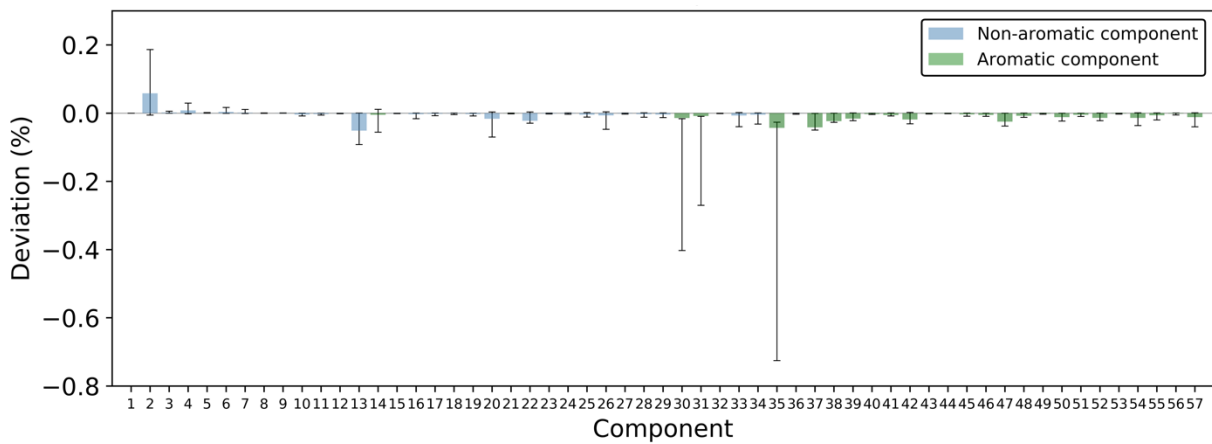
Figure S 24. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 418.
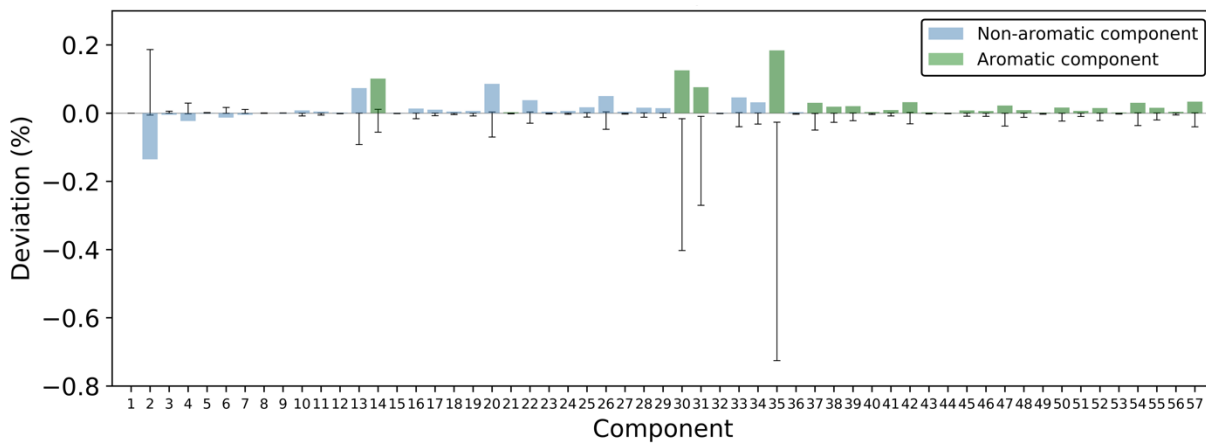
Figure S 25. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 419.
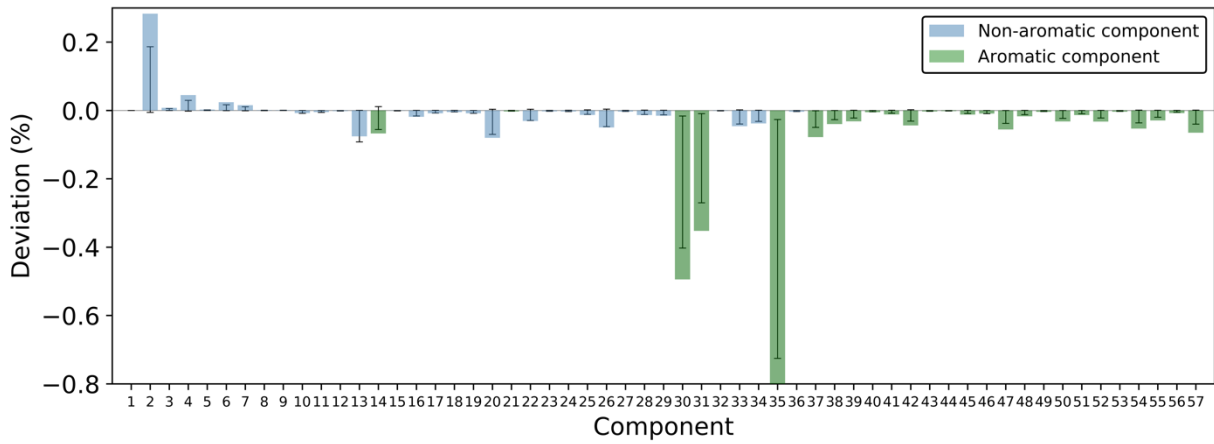
Figure S 26. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 420.
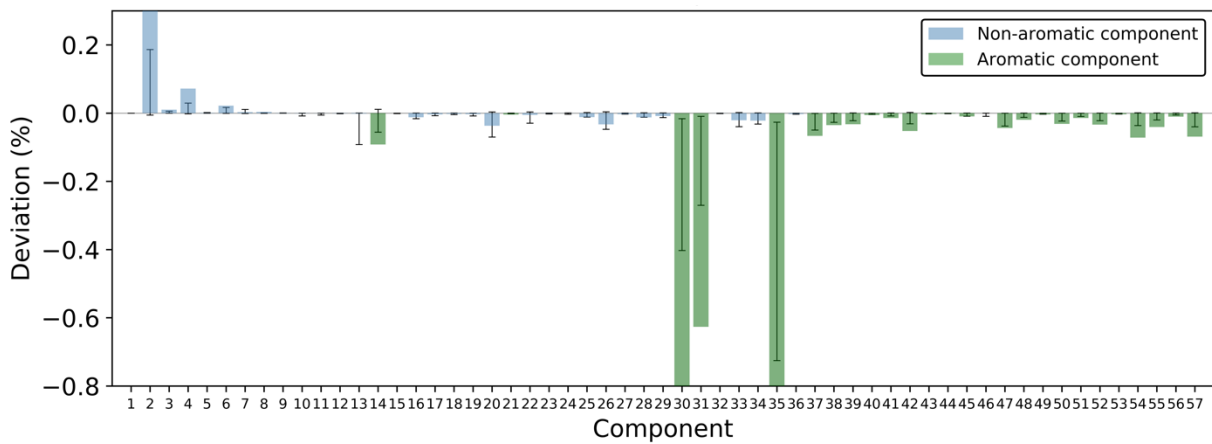
Figure S 27. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 421.
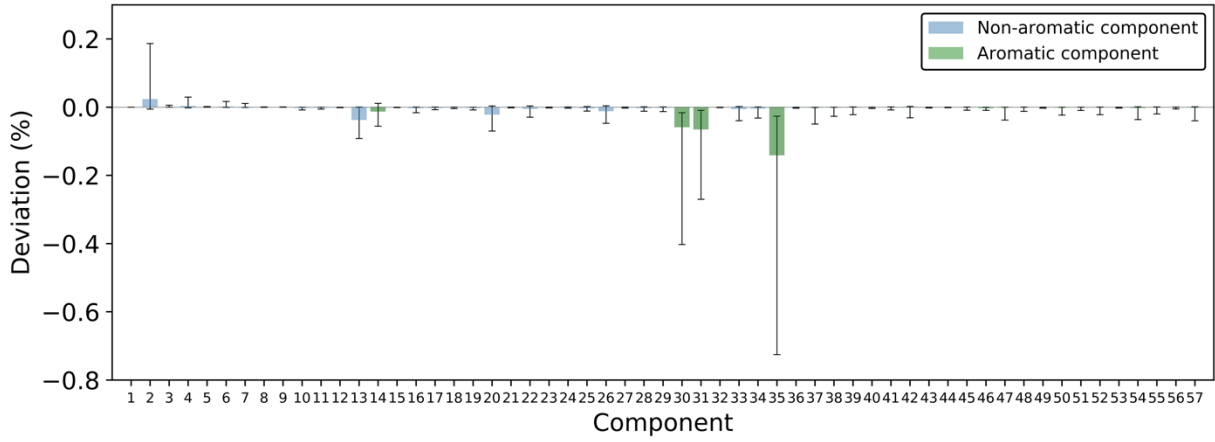
Figure S 28. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 422.
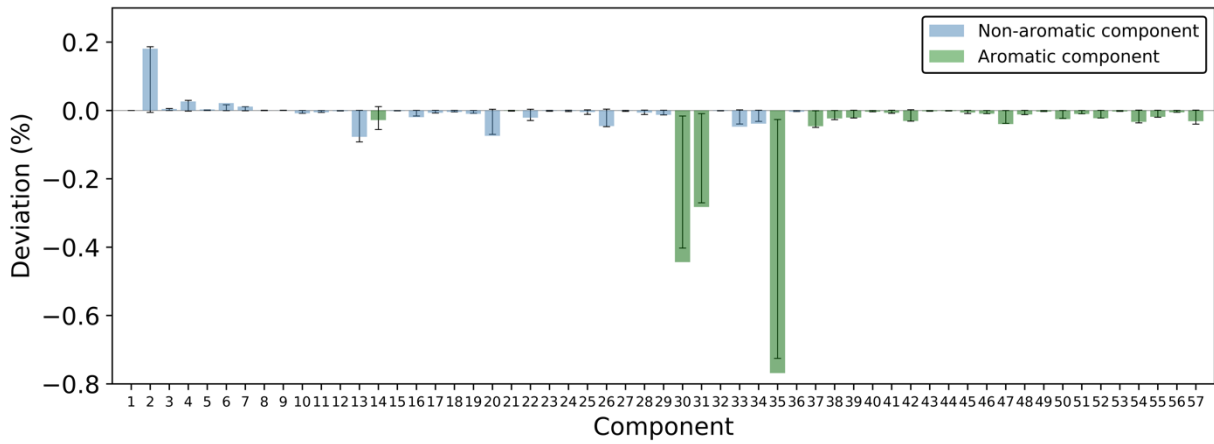
Figure S 29. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 423.
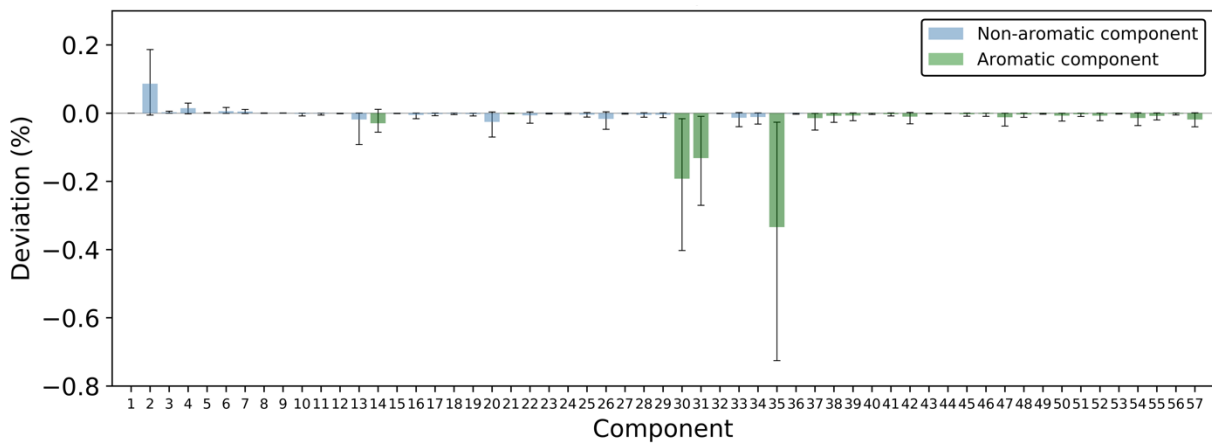
Figure S 30. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 424.
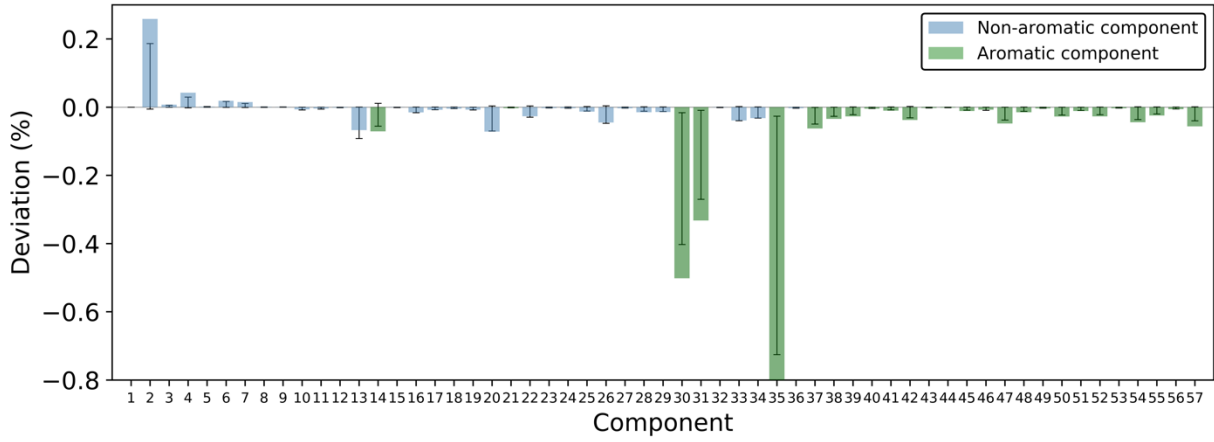
Figure S 31. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 425.
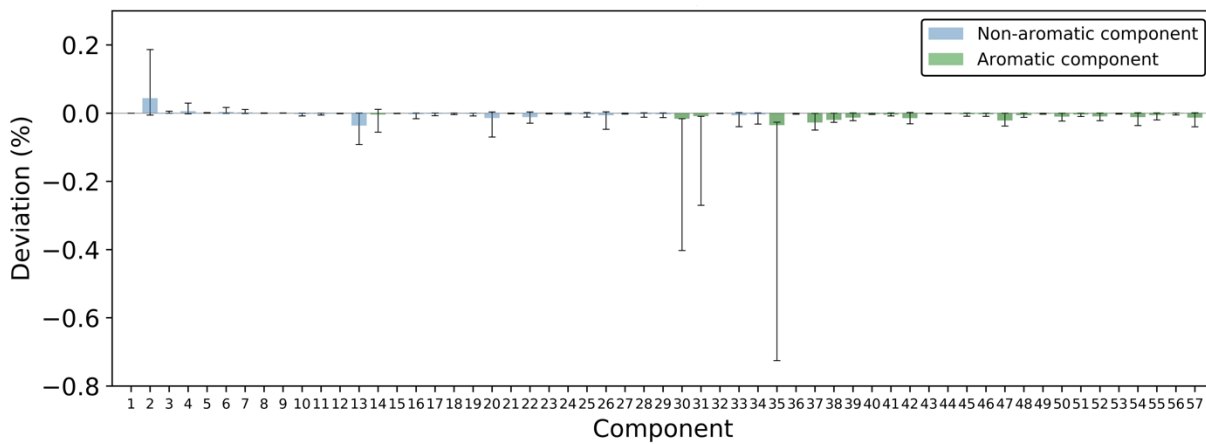
Figure S 32. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 426.
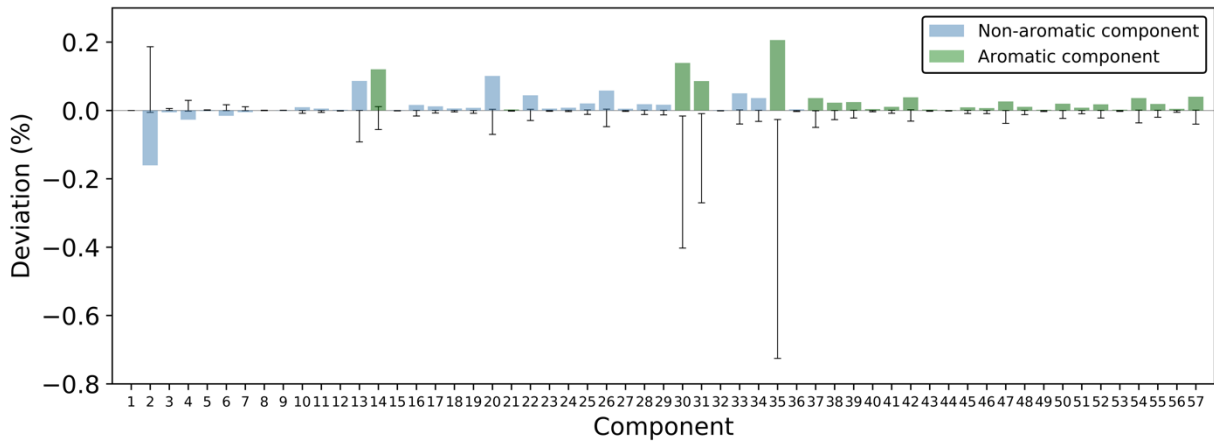
Figure S 33. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 427.
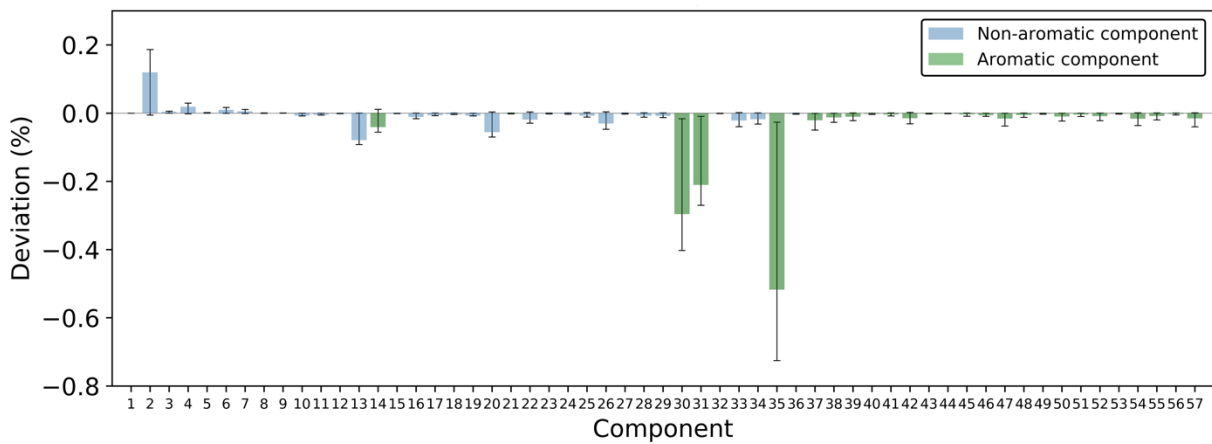
Figure S 34. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 428.
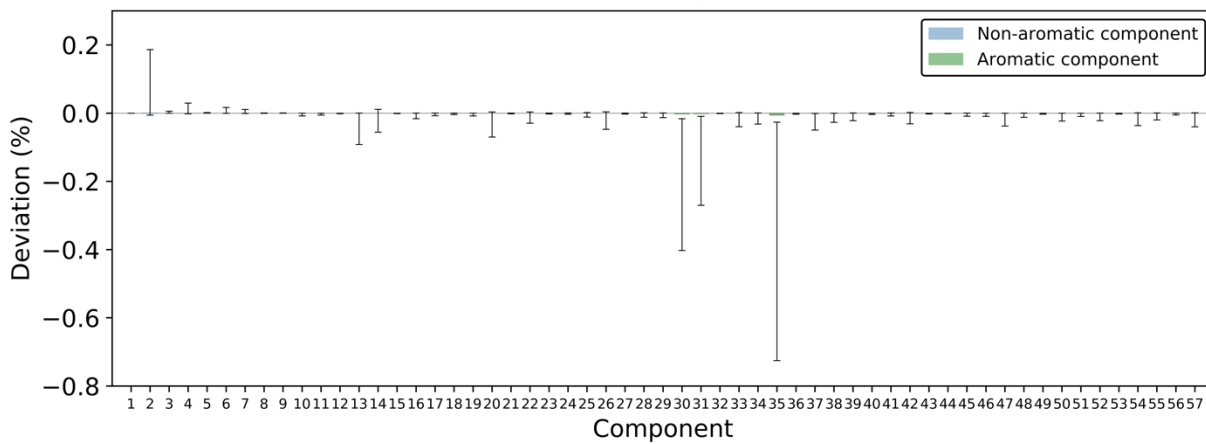
Figure S 35. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 429.
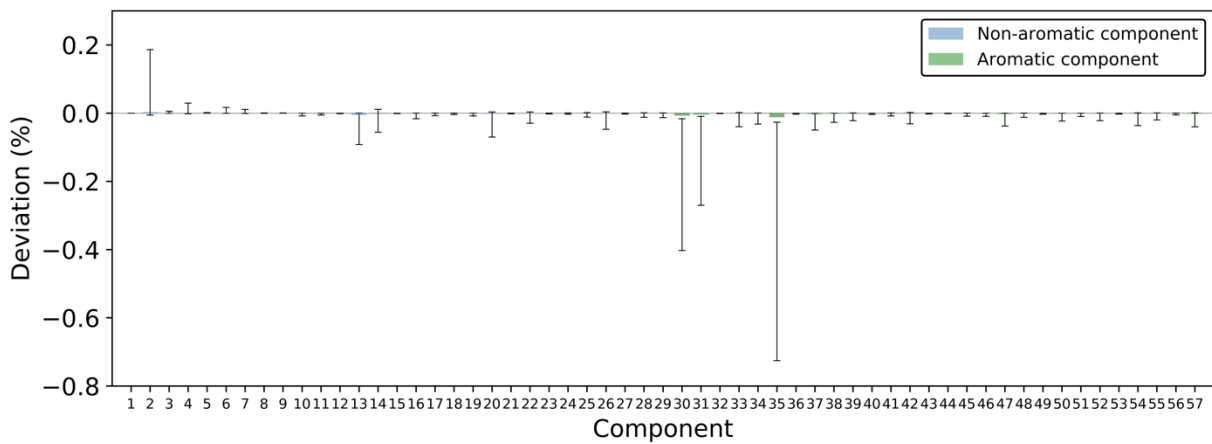
Figure S 36. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 430.
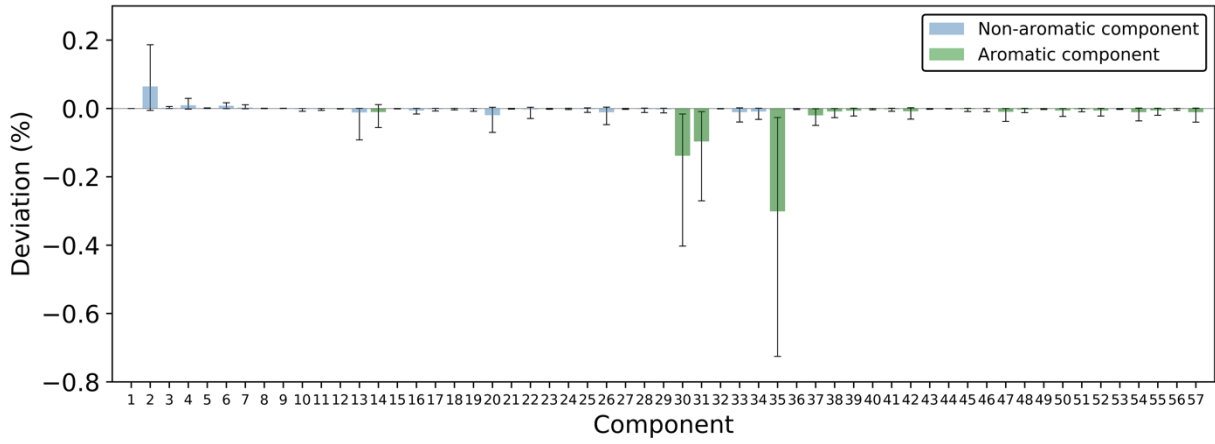
Figure S 37. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 431.
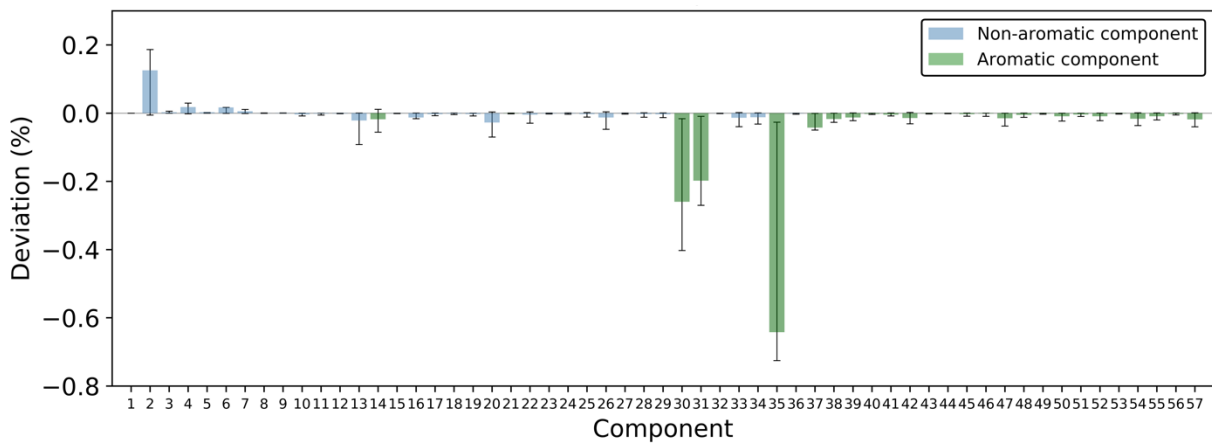
Figure S 38. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 432.
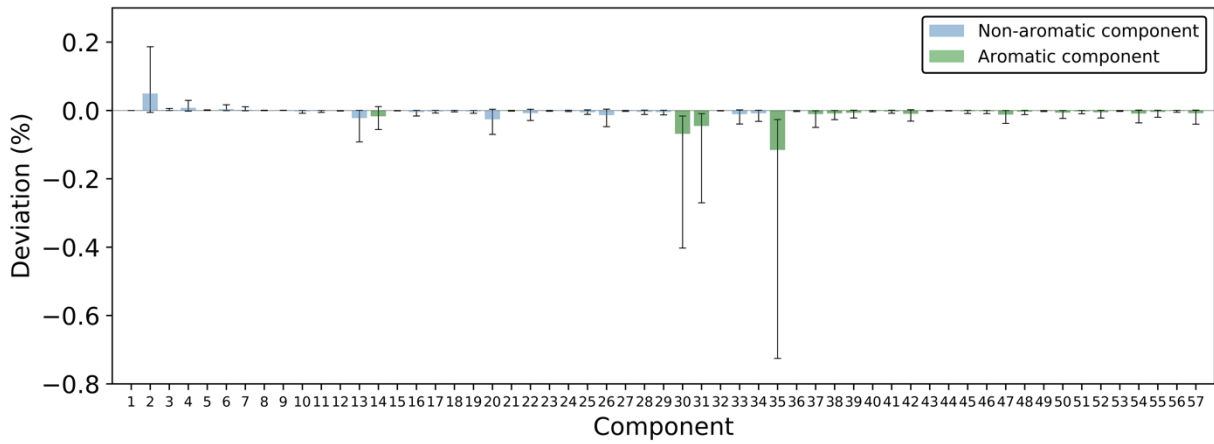
Figure S 39. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 433.
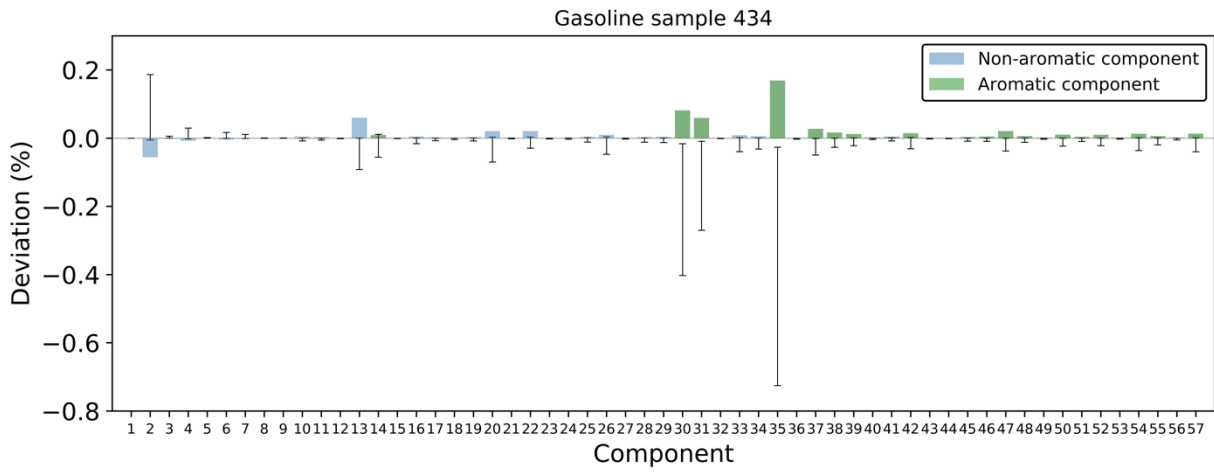
Figure S 40. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 434.
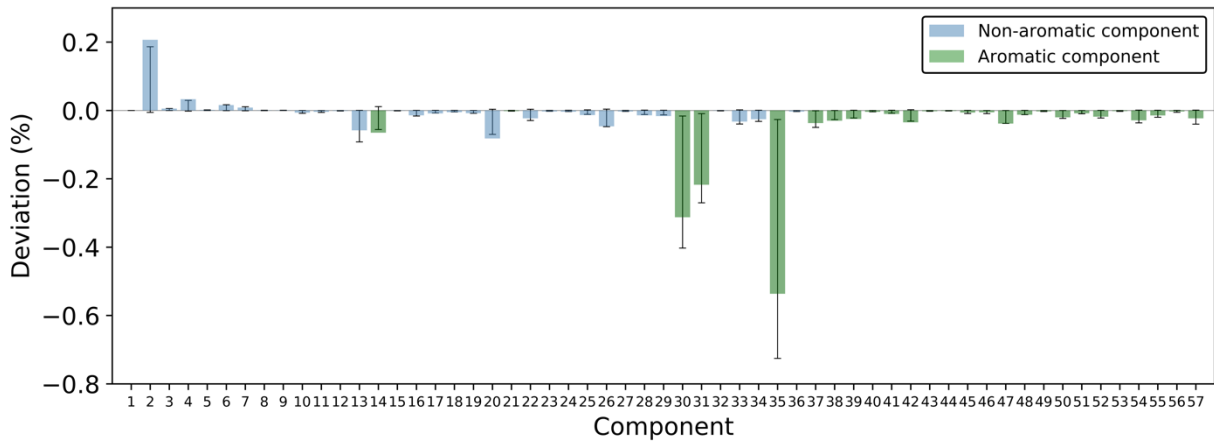
Figure S 41. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 435.
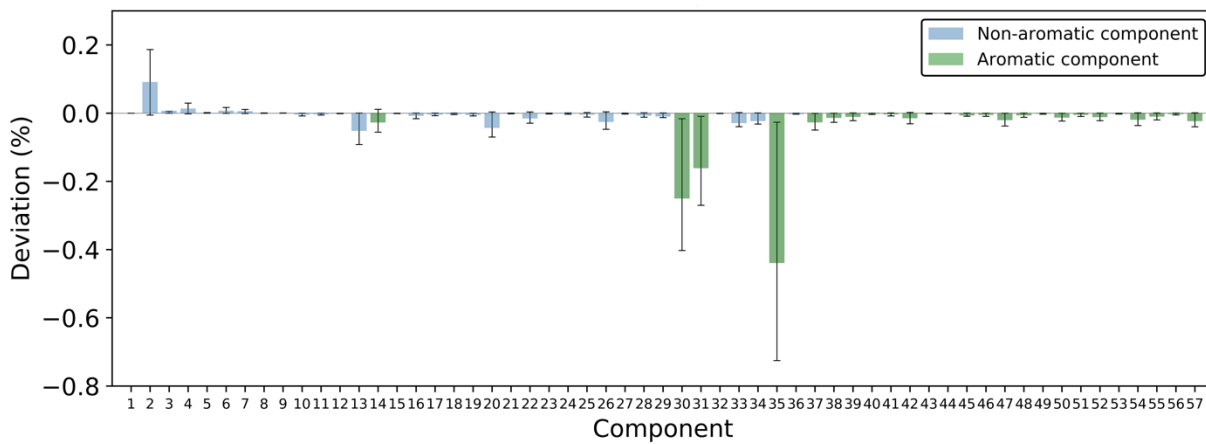
Figure S 42. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 436.
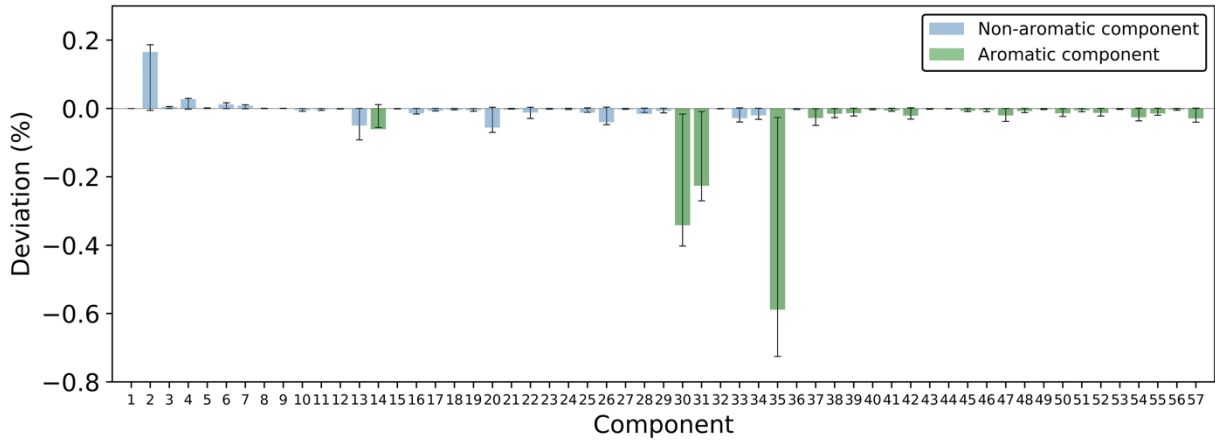
Figure S 43. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 437.
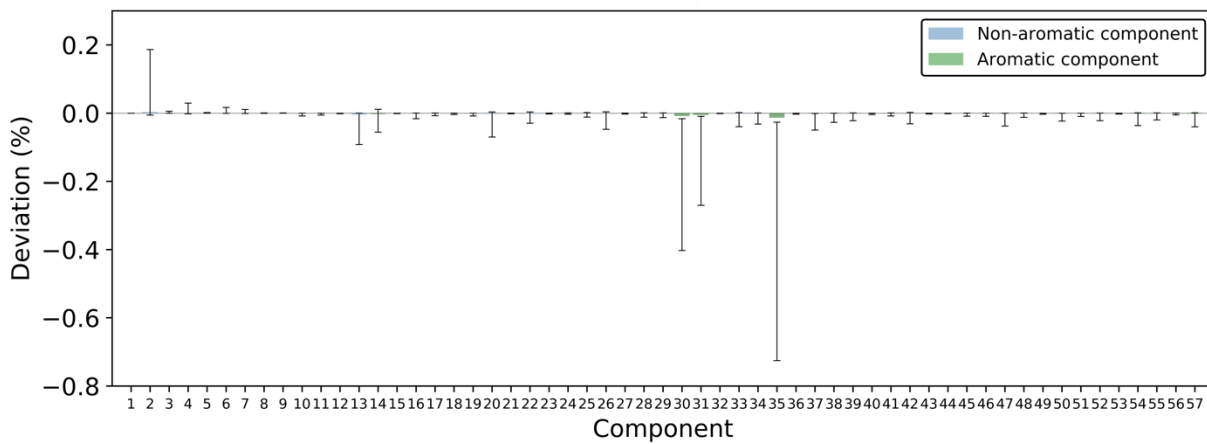
Figure S 44. Prediction of the initial composition of a 50% weathered sample using the ANN and the actual composition. Gasoline sample number: 438.