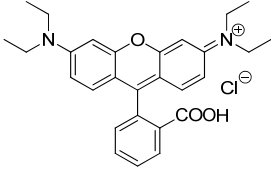
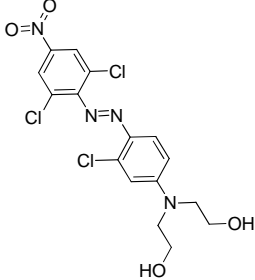
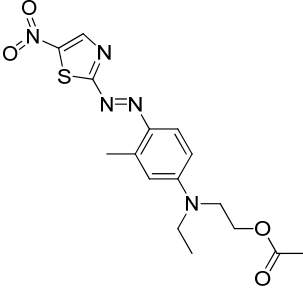
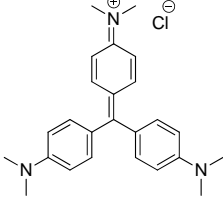
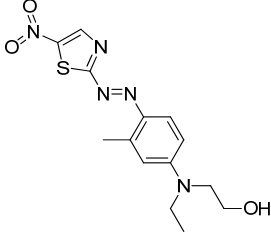
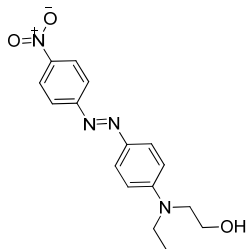
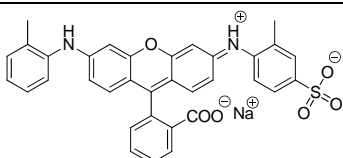
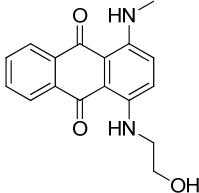
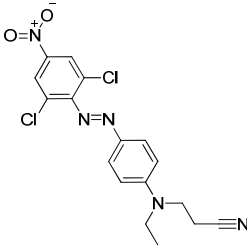
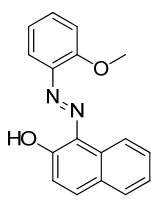
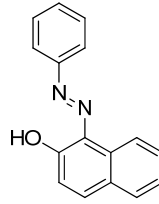
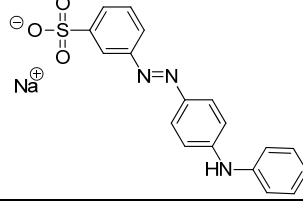
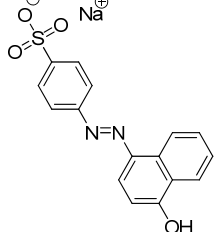
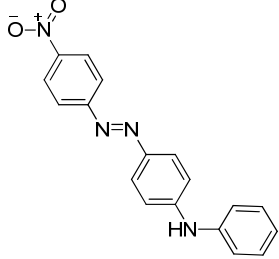
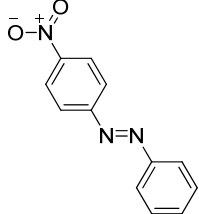


**Appendix** Molecular and structural formulas of the 15 industry dye standards.

| No. | Industry dye      | Molecular formula        | Structural formula  |
|-----|-------------------|--------------------------|---|
| 1   | Rhodamine B       | $C_{28}H_{31}ClN_2O_3$   |    |
| 2   | Disperse Brown 1  | $C_{16}H_{15}Cl_3N_4O_4$ |    |
| 3   | Disperse Blue 124 | $C_{16}H_{19}N_5O_4S$    |   |
| 4   | Crystal Violet    | $C_{25}H_{30}ClN_3$      |  |
| 5   | Disperse Blue 106 | $C_{14}H_{17}N_5O_3S$    |  |

|    |                    |                          |   |
|----|--------------------|--------------------------|---|
| 6  | Disperse Red 1     | $C_{16}H_{18}N_4O_3$     |    |
| 7  | Acid Violet 9      | $C_{34}H_{25}N_2NaO_6S$  |     |
| 8  | Disperse Blue 3    | $C_{17}H_{16}N_2O_3$     |    |
| 9  | Disperse Orange 37 | $C_{17}H_{15}Cl_2N_5O_2$ |   |
| 10 | Sudan Red G        | $C_{17}H_{14}N_2O_2$     |  |
| 11 | Sudan Red I        | $C_{16}H_{12}N_2O$       |  |
| 12 | Metanil Yellow     | $C_{18}H_{14}N_3NaO_3S$  |   |
| 13 | Acid Orange II     | $C_{16}H_{11}N_2NaO_4S$  |  |

|    |                   |                      |   |
|----|-------------------|----------------------|---|
| 14 | Disperse Orange 1 | $C_{18}H_{14}N_4O_2$ |  |
| 15 | Disperse Orange 3 | $C_{12}H_{10}N_4O_2$ |  |