# DNA FACTSHEET

## CONCENTRATION BY ABSORBANCE

Spectrophotometry can be used to estimate DNA or RNA concentration and analyse the purity of the preparation.

For a 1cm pathlength:

- For double stranded DNA $1A_{260}$ = 50µg/mL
- For single stranded DNA $1A_{260}$ = 33µg/mL

Based on extinction coefficients of DNA in water

The OD does not give any indication of the size of the DNA

## PURITY BY ABSORBANCE

- Pure DNA has an A260/A280 ratio ≥1.8
- An A260/A280 ratio <1.8 indicates contamination with proteins or aromatic substances
- An A260/A280 ratio >2.0 indicates a possible contamination with RNA

Note a high A230 reading can also indicate contaminants in the sample

## MOBILITY OF DIFFERENT SIZE DNA FRAGMENTS ON AGAROSE GELS

| Agarose % | Effective resolution range of linear ds DNA fragments (kb) |
|---|---|
| 0.5 | 30 to 1 |
| 0.7 | 12 to 0.8 |
| 1.0 | 10 to 0.5 |
| 1.2 | 7 to 0.4 |
| 1.5 | 3 to 0.2 |

# BIOLOGICAL BUFFERS

The control

## CITRATE BUFFER: USEFUL RANGE PH3.0 TO 6.2

**Table 1 : Citrate buffer components**

| Component | Name | Synonyms | Formula | Mol. Wt. |
|---|---|---|---|---|
| **A** | Citric acid monohydrate | N/A | $C_6H_8O_7 \bullet H_2O$ | **210.14** |
| | Or Citric acid | N/A | $C_6H_8O_7$ | **192.12** |
| **B** | Trisodium citrate dihydrate | Sodium citrate tribasic dihydrate, Citric acid trisodium salt dihydrate | $C_6H_5O_7Na_3 \bullet 2H_2O$ | **294.12** |

# OTHER COMMON BUFFER RECIPES

# REFERENCES