

INTERPRETATION

Health Guidance Values (HGVs) are set at a level at which there is no indication from the scientific evidence available that the substance being monitored is likely to be injurious to health. Values not greatly in excess of a HGV are unlikely to produce serious short or long term effects on health. However, regularly exceeding the HGV does indicate that exposure is not being adequately controlled. Under these circumstances employers will need to look at current work practices to see how they can be improved to reduce exposure.

For further advice contact:

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BIOLOGICAL MONITORING METHODS

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Method for N-methylacetamide in Urine (a metabolite of N, N' - dimethylacetamide)

Hazardous Substance:
N,N-Dimethylacetamide

Occupational Exposure Standard = 10 ppm
(skin notation)
CAS No. 127-19-5

Biological Monitoring Guidance Value:
Health Guidance Value = 100 mmol
NMA /mol creatinine
Conversion: 1mmol/mol = 0.646 mg/g

☐ **Sample Collection**

Time: End of shift urine sample towards the end of the working week

Equipment: Polystyrene universal container (30ml)

☐ **Description of Suggested Method**

Urine (1µl) is injected directly into a gas chromatograph at an injection temperature of 250°C. N-methylacetamide and N-ethylacetamide (the internal standard) are separated on a HP Innowax column 30m x 0.32mm 0.5 µm film at 135°C. They are detected using selected ion monitoring GCMS in EI mode using m/z 73 (NMA) and m/z 87 (NEA).

☐ **Reference**

Dyne D.

Biological Monitoring Method for N,N'-Dimethylacetamide.

HSL Report OT/96/03 (available from HSL).

☐ **Alternative Method**

Barnes & Henry. (1974) The determination of N-methyl formamide and N-methyl acetamide in urine. Am Ind Hyg Assoc J, 35, 84-87.

☐ **Sample Transport to Laboratory**

At ambient temperature, samples should arrive within 48h of collection. If delay anticipated, store at -20°C. Samples sent through postal system must comply with Post Office regulations.

☐ **Analytical Evaluation**

Precision

- within day <6% RSD at 430 µmol/l
- day to day <10% RSD at 430 µmol/l

Detection Limit

- 3x background - 15 µmol/l

Calibration Range

- typically 0-1000 µmol/l

Sample Stability

- 5 days at ambient,
- >3 months at -20°C

Analytical Interferences

- None known

☐ **Other Information**

Elimination half-time

N-methylacetamide in urine, approximately 24 hours

Confounding Factors

None known

Unexposed Levels

None

Creatinine Correction

Advised

☐ **Quality Assurance**

Internal QC - must be established

External QA - available from Health & Safety Laboratory