**AI**

# XXXX

*figure molecule*

*ISO common name* AI

*Chemical name* 2-chloro-4-…..

*CAS No.* 19xx-xx-x

*Empirical Formula* C81H1ClNO…..

*Molecular mass* xxx.x

*m.p.* 1xx °C

*v.p. 0*.9 x 10-7 mm Hg at 25 oC

*Solubility* water 2x.0 mg/L (20 °C); DMSO xx g/kg; chloroform
 xx g/L; ethyl ….

*Description* odorless, white powder

*Stability* stable in neutral acidic or alkaline conditions:
 ……

*Formulations* Water dispersible granules, suspension concentrates…..

# AI TECHNICAL

**[[1]](#footnote-1)\*xxxx**/TC/M/-

# Sampling Take at least XXX g.

# Identity tests

## 2.1 GC. Use the GC method below. The retention time of ...(a.i.).... for the sample solution should not deviate by more than ... % from that of the calibration solution.

**2.2 Infrared.** …. from 4000 to 400 cm-1. The spectrum produced from the sample should not differ significantly from that of the standard.

**3 AI**

**OUTLINE OF METHOD**

The sample of XXX technical material is dissolved in acetone, containing an internal standard, and the XXX content (g/kg) is determined by capillary gas chromatography with flame ionization detection.

**REAGENTS**

*XXX* reference standard, of known purity

*Acetone* Chromatographic grade

*YYY* Internal Standard. Must not contain impurities with the same retention time as XXX.

**Internal Standard Solution.** Prepare a single stock of x mg/ml internal standard solution, of sufficient volume for all samples to be analyzed.

**Calibration Solution.** Prepare calibration solutions in duplicate (CA and CB). Weigh (to the nearest 0.1 mg) about xxx  mg (s mg) of reference standard into a suitable glass container…… Mix thoroughly and transfer a portion of solution into chromatographic injection vials by filtering with a 0.45 µm syringe filter.

**APPARATUS**

*Gas chromatograph* equipped with a split/splitless injection and a flame

ionization detector.

*Capillary column* fused silica, 30 m x 0.32 mm (i.d.), film thickness: XX µm, coated with xxx (DB-X or equivalent).

*Ultrasonic bath*

*Syringe filter* compatible with the solvent (for example, 0.2 µm pore diameter, RC)

**PROCEDURE**

**(a) Gas Chromatographic conditions (typical)**

 *Column* fused silica, 30 m x 0.32 mm (i.d.), 0.25 µm film
 coated with xxx (DB-XXX or equivalent).

 *Injection system*

 Injector split injection

 Injection volume X µl

 Split ratio XX : X

 *Detector* flame ionization

 *Temperatures*

 Injection port XXX °C

 Detector XXX °C

 Oven XXX °C

 *Gas flow rates*

 *Column X* ml/min (XX), constant pressure

 *Detector*

Air XXX ml/min

 Hydrogen XXX ml/min

 *Retention times*

 AI X min (approximate)

 Internal standard X min (approximate)

**(b) System equilibration.**Prepare two calibration solutions. Inject X µl portions of solution CA until the response factors (*fi*) obtained for two consecutive injections differ by less than 1.0%. Then inject a 1 µl portion of the solution CB. The response factor, fi, for this solution should not deviate by more than 1.0% from that of solution CA....

**(c) Sample preparation.** Weigh (to the nearest 0.1 mg) into a volumetric/Erlenmeyer/round-bottomed flask (xx ml) sufficient sample to contain about x mg...(a.i.).... (w mg).

**(d) Determination*.*** Inject in duplicate 1 µl portions of each sample solution bracketing them with duplicate injections of the calibration solution as follows: calibration solution CA, calibration solution CB, calibration solution CA, sample solution S1A, sample solution S1B, calibration solution CA, sample solution S2A, sample solution S2B, calibration solution CA, and so on for further samples. Measure the relevant peak areas.

**(e) Calculation.** Calculate the mean value of each pair of calibration response factors, bracketing the two injections of a sample, and use this value for calculating the AI contents of the bracketed sample injections.

$$f\_{i} = \frac{I\_{r} × s × P}{H\_{s}}$$

$$Content of AI in sample = \frac{f × H\_{w}}{I\_{q} × w} (\frac{g}{kg})$$

where:

*fi* = individual response factor
*f* = mean response factor
*Hs* = Peak area of AI in the calibration solution
*Hw* = Peak area of AI in the sample solution

*Ir* = Peak area of the internal standard in the calibration solution

*Iq* = Peak area of the internal standard in the sample solutions

*s* = mass of AI reference standard in the calibration solution (mg)

*w* = mass of sample taken (mg)

*P* = Purity of AI reference standard (g/kg)

**Repeatability r** = XX to XX g/kg at XXX to XXX g/kg active ingredient content

**Reproducibility R** = XX to XX g/kg at XXX to XXX g/kg active ingredient content

**AI WATER DISPERSIBLE GRANULES**

**[[2]](#footnote-2)\*XXXX**/WG/M/-

# 1 Sampling. Take at least XXX g. Mix thoroughly to obtain samplehomogeneity.

# 2 Identity Tests

## 2.1 GC. As for technical XXXX /TC/M/2.2 and Fig. 2.

**3 AI.** As for AI technical XXXX /TC/M/3 except:

**(c) Sample preparation.** Prepare solutions in duplicate for each sample. Homogenize the test sample thoroughly. Weigh (to the nearest 0.1 mg) sufficient sample to contain about XX  mg (w mg) of AI (equal to approximately XXX mg WG formulation containing XXX g/kg AI) into a suitable glass container (for example, a glass bottle with XX ml capacity). Add by pipette or calibrated dispenser XX ml of the internal standard stock solution to the weighed aliquot. Place the capped glass container in an ultrasonic apparatus for XX minutes. Mix thoroughly and filter solutions through a 0.45 µm syringe filter prior to analysis (solutions SA and SB).

**Repeatability r** = XX to XX g/kg at XXX to XXX g/kg active ingredient content

**Reproducibility R** = XX to XX g/kg at XXX to XXX g/kg active ingredient content

**AI SUSPENSION CONCENTRATES**

**[[3]](#footnote-3)\*XXXX**/SC/M/-

# 1 Sampling. Take at least XXX ml. Mix thoroughly to obtain samplehomogeneity.

# 2 Identity Tests

## 2.1 GC. As for technical XXXX /TC/M/2.2 and Fig. 2.

**3 AI.** As for AI technical X**XXX** /TC/M/3 except:

**(c) Sample preparation.**Prepare solutions in duplicate for each sample. Weigh (to the nearest 0.1 mg) sufficient sample to contain XXX mg (w mg) of AI (equal to approximately XXX mg SC formulation containing XXX g/kg AI) into….

**Repeatability r** = X to X g/kg at XX to XX g/kg active ingredient content

**Reproducibility R** =X to X g/kg at XX to XX g/kg active ingredient content

**4 Suspensibility**

**REAGENTS AND APPARATUS.** As for **XXX**/TC/M/3 and MT 184.1.

**PROCEDURE**

**(a) Preparation of suspension and determination of sedimentation. MT 184.1.**

**(b) Determination of AI in the bottom 25 ml of suspension.** After removal of the top 225 ml of suspension transfer the remaining 25 ml to a volumetric flask (XXX ml) and sdd solvent XXX (about XX ml). Place the flask in an ultrasonic bath for X min. Allow to cool to ambient temperature and fill to the mark with solvent XXX. Mix thoroughly. Filter through a XXX µm filter prior to analysis. Determine the mass of AI (Q g) by **XXX**/TC/M/3.

**(c) Calculation**

$$Suspensibility = \frac{111(c-Q)}{c} \%$$

where:

*c =* mass of AI in the sample taken for the preparation of the suspension (g)

Q = mass of AI in the bottom 25 ml of suspension (g)

**Fig. 1** Typical IR spectrum according to XXX/TC/M/2.1

**Fig. 2** Typical chromatogram of AI TC

**Fig. 3** Typical chromatogram of AI in WG Formulation

**Fig. 4** Typical chromatogram of AI in SC Formulation

1. \* CIPAC method 20xx. Based on a method supplied by …… [↑](#footnote-ref-1)
2. \* CIPAC method 20XX. Based on a method supplied by company [↑](#footnote-ref-2)
3. \* CIPAC method 20XX. Based on a method supplied by company [↑](#footnote-ref-3)