

BIJLAGEN BIJ AANVULLEND TENTAMEN FA 202, 23 december 2014

Informatie bij vraag 3 (Clarke's)

Gegevens chloralhydraat

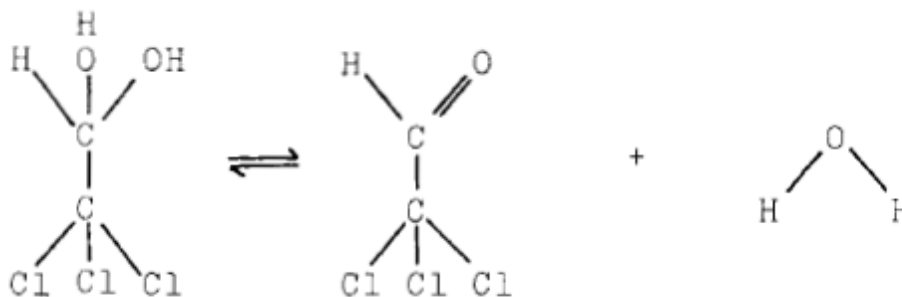
IUPAC Name: 2,2,2-Trichloro-1,1-ethanediol, $C_2H_3Cl_3O_2$, $M_r=165.4$

Synonyms: Cloral; cloral hydrate.

Dosering: Als sedativum, bijvoorbeeld bij diagnostisch onderzoek of niet-pijnlijke ingrepen: gewoonlijk 300 mg, 3 keer per dag.

Chemical Properties: Colourless or white crystals which volatilise slowly on exposure to air and are decomposed by caustic alkalis, liberating chloroform. Mp 50° . Bp 98° . 1 mL of water dissolves the following amounts of cloral hydrate: 2.4 g at 0° , 8.3 g at 25° , 14.3 g at 140° . Soluble: 1 in 0.2 of ethanol, 1 in 1.3 of alcohol, 1 in 2 of chloroform, 1 in 1.4 olive oil, 1 in 0.5 glycerol, 1 in 68 g carbon disulfide and 1 in 1.5 of ether. Freely soluble in acetone and methylethyl ketone. Moderately or sparingly soluble in turpentine, petroleum ether, carbon tetrachloride, benzene, and toluene. Ethanolic solutions may deposit crystals of cloral ethanolate. pK_a 10.0. Log P (octanol/water), 0.99.

Chloralhydraat in oplossing is in evenwicht met trichlooracetaldehyde (Chloral):



Informatie bij vraag 4.

Wet van Stokes:

$$v = \frac{2r^2(\rho - \rho_0)g}{9\eta_0}$$

r = radius deeltje

ρ = dichtheid deeltje

ρ_0 = dichtheid medium

g = valversnelling

η_0 = viscositeit medium

FNA methylparabeenoplossing

Declaratie

Werkzaam bestanddeel: -

Farmaceutische vorm: halfpreparaat voor vloeibare toedieningsvormen

Hulpstoffen: methylparahydroxybenzoaat, propyleenglycol

Receptuur

Methylis parahydroxybenzoas	15 g
Propylenglycol	91 g
	106 g (= 100 ml)

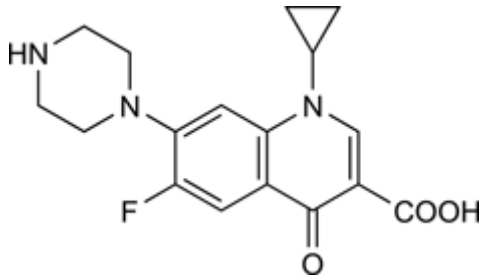
FNA suikerstroop

Declaratie

Bevat 630 mg saccharose en 1 mg methylparahydroxybenzoaat per g

Bijlagen bij vraag 5 (Clarke's)

Ciprofloxacin



M_w : 331,4 g/mol

It is practically insoluble in water; very slightly soluble in ethanol and in methylene chloride; soluble in dilute acetic acid.

Log P (octanol/water), 0.28.

Very soluble	1 part in less than 1
Freely soluble	1 part in 1-10
Soluble	1 part in 10-30
Sparingly soluble	1 part in 30-100
Slightly soluble	1 part in 100-1000
Very slightly soluble	1 part in 1000-10000
Practically insoluble or insoluble	1 part in more than 10000

Bijlage: Statistiekformules en tabellen

$$\sigma_y = \sqrt{\sigma_a^2 + \sigma_b^2} \quad RSD_y = \sqrt{RSD_a^2 + RSD_b^2} \quad RSD = \frac{\sigma_y}{y} * 100\%$$

$$RSD_y = \sqrt{RSD_a^2 + RSD_b^2 + RSD_c^2 + RSD_d^2 + RSD_e^2} \quad F = \frac{s_{grootste}^2}{s_{kleinste}^2}$$

$$Q = \frac{\text{maximum} - \text{naastliggende}}{\text{range}} \text{ of } Q = \frac{\text{naastliggende} - \text{minimum}}{\text{range}}$$

$$r = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^n (X_i - \bar{X})^2 \sum_{i=1}^n (Y_i - \bar{Y})^2}} \quad T = \frac{r}{\sqrt{(1-r^2)/(n-2)}} \sim t_{n-2}$$

$$b = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sum_{i=1}^n (X_i - \bar{X})^2} \quad a = \bar{Y} - b * \bar{X} \quad T = \frac{b}{SE(b)} \sim t_{n-2}$$

$$SE(b) = \sqrt{\frac{s^2}{\sum (X - \bar{X})^2}} \quad SE(a) = \sqrt{\frac{s^2 \sum X_i^2}{n \sum (X - \bar{X})^2}}$$

$$s = \sqrt{\frac{\sum_{i=1}^n (Y_i - (a + bX_i))^2}{(n-2)}}$$

$$SE(\hat{Y}_0) = s * \sqrt{\frac{1}{m} + \frac{1}{n} + \frac{(X_0 - \bar{X})^2}{\sum (X - \bar{X})^2}}$$

$$SE(\hat{X}_0) = \sqrt{\frac{s^2}{b^2} \left(\frac{1}{m} + \frac{1}{n} + \frac{(Y_0 - \bar{Y})^2}{b^2 \sum (X - \bar{X})^2} \right)}$$

n	Q _{.10}	Q _{.05}
3	0.941	0.970
4	0.765	0.829
5	0.642	0.710
6	0.560	0.625
7	0.507	0.568
8	0.448	0.526
9	0.437	0.493
10	0.412	0.466

f-tabel (De vrijheidsgraden in de eerste rij van de tabellen hebben betrekking op de variantie in de teller, die in de eerste kolom van de tabellen op de variantie van de noemer in de F-toets):

kritische waarden voor de F-toets, 95% betrouwbaarheid, éézijdig

Vrijheids-graden	1	2	3	4	5	6	7	8	9	10
1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5	241.9
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.40
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98

kritische waarden voor de F-toets, 95% betrouwbaarheid, tweezijdig

Vrijheids-graden	1	2	3	4	5	6	7	8	9	10
1	647.8	799.5	864.2	899.6	921.8	937.1	948.2	956.6	963.3	968.6
2	38.51	39.00	39.17	39.25	39.30	39.33	39.36	39.37	39.39	39.40
3	17.44	16.04	15.44	15.10	14.88	14.73	14.62	14.54	14.47	14.42
4	12.22	10.65	9.98	9.60	9.36	9.20	9.07	8.98	8.90	8.84
5	10.01	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68	6.62
6	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52	5.46
7	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.82	4.76
8	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36	4.30
9	7.21	5.71	5.08	4.72	4.48	4.32	4.20	4.10	4.03	3.96
10	6.94	5.46	4.83	4.47	4.24	4.07	3.95	3.85	3.78	3.72

t-tabel:

<i>eenzijdig</i>	80%	85%	90%	95%	97.5%	99%	99.5%
<i>tweezijdig</i>	60%	70%	80%	90%	95%	98%	99%
df 1	1.376	1.963	3.078	6.314	12.71	31.82	63.66
df 2	1.061	1.386	1.886	2.920	4.303	6.965	9.925
df 3	0.978	1.250	1.638	2.353	3.182	4.541	5.841
df 4	0.941	1.190	1.533	2.132	2.776	3.747	4.604
df 5	0.920	1.156	1.476	2.015	2.571	3.365	4.032

df = aantal vrijheidsgraden

Informatie bij vraag 7:

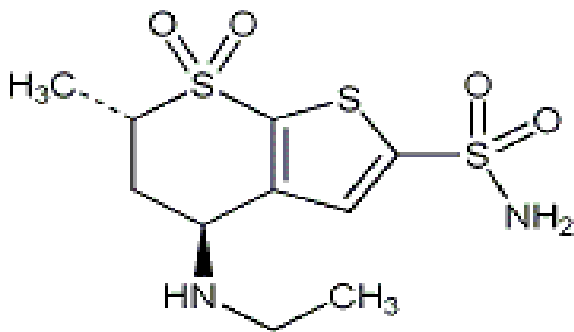
Fosforzuur: $pK_{a1} = 2,15$;
 $pK_{a2} = 7,09$;
 $pK_{a3} = 12,32$

Mol massa's (g/mol)

$NaH_2PO_4 \cdot H_2O$ 138,0
 $NaH_2PO_4 \cdot 2H_2O$ 156,0

$Na_2HPO_4 \cdot H_2O$ 159,9
 $Na_2HPO_4 \cdot 2H_2O$ 178,0
 $Na_2HPO_4 \cdot 12H_2O$ 358,0

Informatie bij vraag 8 (Clarke's)



Dorzolamide

UV absorptie: λ_{max} (ethanol) 265 nm; $E_{1\%}^{1cm} = 300$

pK_a: 6,4 en 8,4

Oplosbaarheid:

- 1:1500 in water; oplosbaar in zuur en alkali;
- oplosbaar in (m)ethanol;
- 1:15 in dimethylsulfoxide (DMSO);
- goed oplosbaar in dimethylformamide (DMF).