

in these saturated range. Therefore, in emulsion polymerisation of vinylacetate these detergents seem to be not only sorbed in the surface but also soluble into the polymer particles.

Table 2 shows some results of same experiments on the other vinyl compounds. Methylacrylate behaves similarly to vinylacetate, but methylmethacrylate, acrylonitrile and styrene show no saturation. In the cases of latter three monomers, the detergents would be adsorbed around the emulsion particles as reported already by various authors.

Table 2. Sorption of Na-laurylsulfate on polymer particles.
(Polymerisation recipes are the same as in Table 1).

Monomers	The Amount of Emulsifier used (g.)	The Amount of Emulsifier Sorbed (g.)	The Amount of Emulsifier Sorbed (g./g. polymer)	Estimated radius of particles (μ)
Methylacrylate	0.0381	0.0381	0.0053	
	0.0600	0.0521	0.0072	
	0.0762	0.0536	0.0074	
	0.1210	0.0550	0.0076	
Methylmethacrylate	0.0100	0.0067	0.00097	precipitated during polymerisation
	0.0167	0.0127	0.0018	0.1
	0.0334	0.0284	0.0040	0.067
	0.0675	0.0601	0.0087	0.053
	0.1670	0.1555	0.0224	0.033
	0.7002	0.6540	0.0895	
Acrylonitrile	1.166	0.8645	0.1182	
	0.0668	0.0000	0	precipitated during polymerisation
	0.1002	0.0000	0	0.15
	0.2188	0.1986	0.0276	0.1
	0.3660	0.2510	0.0349	0.07
	0.6250	0.4060	0.0563	

13. On the Lethal Effect of the Powder of Silicon Carbide to Adults of the Azuki Bean Weevil, *Callosobruchus chinensis* L., with Special Reference to the Relation between Lethal Effect and Particle Size

Sumio NAGASAWA

(Takei Laboratory)

It has been known for few years that the silicon carbide powder has a lethal effect to some stored grain weevils and that fine particle is more effective than the

coarse one. The writer investigated this problem at the statistico-physiological point of view. The main points of this investigation are as follows:

(1) By sprinkling method, the lethal effect of silicon carbide powder of different particle sizes to adults of the azuki bean weevil, *Callosobruchus chinensis* L., is investigated under the constant condition of 30° C and 73 %, 91 % and 100 % relative humidities.

(2) For all particle size, the time-mortality curves prove to be more linear when the net percentage of mortality in probits is plotted against the time of survival after treatment than when it is plotted against the logarithms of time.

(3) Relation between survival time after treatment T and logarithms of particle size d ($\log D \times 10^{-3}$, here D is the diameter of particle) at the 50 percent mortality is represented by the equation, $T + b_2d = a_2$. And male is more susceptible to lethal effect of silicon carbide than female. The results are summarized in the following table.

Relative humidity	Sex	Regression equation $T + b_2d = a_2$	Precision of parameters a_2 and b_2			
			S^2	$V(a_2)$	$V(b_2)$	
73%	Female	$T - 2.50881d = 2.86529$	0.04460	0.00558	being $\bar{d} = 1.27747$	0.04053
	Male	$T - 2.13111d = 1.71258$	0.03489	0.00436		0.03171
91%	Female	$T - 3.38286d = 2.25424$	0.02364	0.00296	being $\bar{d} = 1.27747$	0.02148
	Male	$T - 3.07448d = 1.57379$	0.06485	0.00811		0.05894
100%	Female	$T - 3.62121d = 1.85541$	0.02113	0.00264	being $\bar{d} = 1.27747$	0.01920
	Male	$T - 3.52905d = 0.91860$	0.04176	0.00574		0.04176

14. Studies on the Analgesic Action of Adrenergic Amines

Hajime FUJIMURA and Takaji UESHIMA

(Ogiu Laboratory)

It has been reported that adrenaline, as well as some other adrenergic agents, exerts an analgesic effect, but the experimental evidence in this problem is not yet sufficient. It was intended therefore to study the analgesic activity of the following preparations and to establish the mode of action of adrenergic agents.

I. 1-Adrenaline (1-Epinephrine HCl)

II. 1-Ephedrine (1-Ephedrine HCl)

III. dl-Methylephedrine (dl-N-methylephedrine HCl)

IV. d-Methylpropamine (d-Desoxyephedrine HCl)