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THE INTERNATIONAL SUPERPHOSPHATE MANUFACTURERS' ASSOCIATION

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GRINDING OF GRANULATED FERTILIZERS IN A PHILLIPS COFFEE MILL.

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We have several months' experience of grinding samples of granular fertilisers, superphosphate and concentrated fertilisers in a Phillips Coffee Mill (Type HA 2760, 220/240 volt, 13 watt, A.C. Motor) for laboratory analytical purposes.

The procedure developed at the beginning for the operation of the mill was successful, and is as follows:

Approximately one half of the sample (about 250 gms.) is put into the mill, ground for 10 - 15 seconds and passed through a 1 mm. mesh sieve. The second half is similarly ground for 10 - 15 seconds and poured on the 1 mm. sieve. On average, 90% passes through the sieve. The remaining 10% is returned to the mill and ground for another 10 seconds. This material will then pass through the sieve, any small remaining particles being quickly rubbed through with a pestle. After cleaning the grinding chamber and the grinding blades with a spatula and brush (perhaps wiping out with a dry cloth afterwards), the mill is ready for the next grinding. The duration of the whole operation is 4 - 5 minutes.

The mill must under no circumstances be washed out; at the most, a slightly damp cloth can be used, so that the motor is not damaged. It should also be noted that the motor must not be overloaded and, especially, should not be allowed to race unnecessarily. It should on no account run for more than 5 minutes; 10 - 15 seconds is sufficient for fine grinding.

To avoid accidents with this type of coffee mill, great care must be taken that the plug is pulled out of the socket before emptying, as the switch, which protrudes, could accidentally be pressed during emptying and the fast moving grinding mechanism could cause injury to the fingers.

Phillips were made aware of this danger in their present design and the sinking of the switch was suggested. It was also suggested that Phillips should try and build in a safety circuit-breaker so that whenever the lid of the grinding chamber is removed, and also during emptying, switching on is impossible.

Contrary to earlier information, the grinding mechanism of the mill can be easily changed as it is screwed in. The grinding mechanism is screwed on to the upper end of the motor drive. The lower end of the drive is slotted and the drive can be held fast through a hole in the bottom of the casing with a suitable screwdriver and then the grinding mechanism can be unscrewed. Grinding mechanisms so far received have grinders made of a metal alloy which wears out relatively quickly, (on average about 400 grindings can be made with it). Phillips have, on our recommendation, developed a new, stronger grinding blade and are now fitting the mills with it. The length of life of these new blades is being examined at the present moment.