In operating the process according to the present invention it has been found that the conditioning of the die or dies by forcing therethrough a particulate material comprising a lubricant, and preferably also, an abrasive, requires a period of two to four hours.

The pelleting of the material per se may then be commenced but it is preferred, particularly on restarting after an interval to force through the die or dies a mixture of a lubricant and some of the material to be finally pelleted, for a period, depending upon the material to be pelleted, to raise the temperature of the dies to an appropriate value before feeding the material to be pelleted per se to the process.

In pelleting crystalline urea it has been found that the appropriate temperature is in the range of 90°C to 110°C C and preferably about 100°C C and the period required is from 10 to 20 minutes.

Thereafter the pelleting of the crystalline urea per se may be continuous over long periods.

It has also been found that when the process is to be stopped, it is desirable again to feed to the die or dies a material comprising a lubricant in order to ensure the maintenance of the conditioning and satisfactory restarting of the process.

The above-mentioned period of feeding to the die or dies a material comprising a lubricant at the appropriate temperature will vary with the material to be pelleted, but may easily be determined by preliminary trials.

Pellets produced from crystalline urea by the process of the present invention have good mechanical strength and are suitable for many purposes, particularly for use as fertilizers which are to be distributed by means of mechanical or aerial means. Analysis of the pellets shows there is no substantial increase in the bluet content of the urea.

I claim:

1. A process for pelleting particulate solid material which comprises compacting said particulate material in admixture with a solid lubricant by forcing the mixture through a die orifice in which the greatest lateral dimension to the length is in the range of 1.5 to 1.15, whereby said die is conditioned, removing the thus extruded material and thereafter continuously compacting said particulate solid material free from said lubricant by forcing the same through said die and forming pellets thereof.

2. A process for pelleting crystalline urea having a moisture content less than 2% which comprises compacting an initial quantity of said urea admixed with an amount of the order of 2% of a solid lubricant selected from the class consisting of graphite, talc, stearic acid and its salts, particularly its alkali salts, e.g. soap.

Abraavics which have been found suitable in the process of the present invention include finely divided silicon carbide and alumina.

The quantities of lubricant and abrasive will depend on various factors, for example on the materials of construction of the dies and on the material to be pelleted.

It has been found however that quantities of the order of 2% by weight are in general sufficient.

The process of the present invention may be applied to many materials and has been found particularly suitable for the production of pellets of sizes in the range 0.1 inch in diameter by 0.5 inch to 0.25 inch long for crystalline urea, employing a die length in the range of 0.75 inch to 1.5 inch.

In general the particulate material to be pelleted should be substantially dry and although a moisture content up to about 1% by weight by be tolerated it is preferable for it not to exceed 0.1%.
heated die to compact said particulate material; and there- 
after forming pellets of said compacted material.

5. A process as in claim 4 in which said admixture 
also includes about 2% by weight of a finely divided agra- 
vise.

6. A process as in claim 5 in which the lubricant is 
selected from graphite, talc, stearic acid and its salts and 
in which the abrasive is selected from the group consisting 
of silicon carbide and alumina.

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