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COMPOSITION FOR PREVENTING LOADING OF CUTTING AND ABRADING SURFACES

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The present invention relates to a composition for use in metal working, and more particularly has reference to a composition which will prevent "loading" of the cutting or grinding tool, thereby materially increasing the cutting or grinding action and at the same time the life of the tool, the composition additionally being efficacious for lubricant purposes in metal spinning, extrusion dies and deep draw dies.

There are, of course, numerous compounds which have heretofore been proposed for facilitating cutting, abrading and similar operations, as well as compounds which will function as a lubricant for various moving parts of machinery. However, it is felt that the composition of the instant invention possesses important advantages over those currently employed, in that it possesses a relatively wide range, insofar as cutting and abrading methods are concerned, as well as its employment for lubricating operations.

An important object of the present invention is to provide a composition in solid form which, when applied to an abrading or grinding surface, becomes a highly viscous fluid in the inner granular areas of the abrading surface, thereby tending to function as a flotation medium for the particles of the grinding agent loosened or dislodged in the abrading process.

A further object of my invention is to provide a composition of the character set forth which will resist the peripheral speed of a wheel or other rotating body and thus not be "thrown off," and also which resists "breaking down" temperatures caused by friction.

And still another object of the invention is to provide a composition for accomplishing the ends hereinabove set forth, wherein a control agent is included for determining the melting point desired for the particular operation being performed.

For a further understanding of the invention and of the objects and efficacy thereof, reference will be made to the following description and to the annexed claims in which the novelty of the invention is more particularly set forth.

Viewing the invention broadly, it comprises tallow, paraffin, beeswax, citric acid, oxalic acid, urea, potassium citrate, and a suitable coloring agent mixed in the proper proportions and sequence, the final product preferably being cast or otherwise processed to provide a solid body.

The major proportion of the end product is composed of tallow. paraffin and beeswax, and by virtue of the many factors which must be considered in connection with various metal working

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operations, it is necessary that a control for the melting point desired be present. For example, in spinning steel, a higher temperature is attained than is the case in the spinning of aluminum, and hence a higher melting point of the product is required to reduce the amount of "throw off." Additionally, if the composition is employed on a grinding or abrading wheel, the compound requires a higher melting point in the case of a coarse abrading surface than is true of a fine abrading surface.

Another factor to be considered is the variance in the melting point of tallow, paraffin and beeswax. The melting point of tallow is between 45 and 65° C., whereas paraffin melts between 45 and 75° C. Consequently, should the melting point of one batch of tallow be lower, it is necessary that the melting point be forced to the required temperature and this is accomplished by the use of the same control for determining the melting point of the composition.

For a normal 100 pound lot of the compound, the end product is made as follows: 65 pounds of tallow is introduced into a suitable receptacle and melted at the lowest possible temperature, the temperature, of course, depending upon the origin of the particular raw material used. After the tallow has been melted, 29 pounds of paraffin is carefully added and the tallow and paraffin are agitated or stirred by either manual or mechanical means, the temperature being carefully controlled because of the highly inflammable nature of the ingredients.

6 pounds of beeswax is then introduced into a separate receptacle or container and is subjected to heat, and upon the beeswax being melted, 1.3 ounces of citric acid is added thereto. A similar amount of oxalic acid and potassium citrate is then added to the molten beeswax.

The latter substance is then introduced into the molten tallow and paraffin and the whole is continuously stirred or agitated. 6.6 ounces of urea are now added, after which a sufficient amount of Vienna Red is introduced to provide the particular color desired. The composition is then cast into the desired shape and can be packaged in any suitable type of container.

As hereinabove mentioned, the melting point of the composition can be effectively controlled and this is accomplished by the quantity of urea employed. By adding a greater amount of urea, a higher melting point is achieved, and by reducing the amount, a lower melting point results. The paraffin functions as a carrier to prevent

separation, and the beeswax serves as a stiffening agent for the composition.

It is believed that the citric acid, oxalic acid and potassium citrate function to make the compound substantially odorless which, of course, materially increases the desirability of the composition in the industry. Furthermore, these particular ingredients also appear to aid in decreasing the greasiness of the composition which will eliminate a grease film being left upon the hands by handling the composition.

It will be appreciated, therefore, that the composition of the present invention is capable of many different uses in metal working processes which will be apparent to one skilled in the art. By virtue of the control agent, the proper melting point of the product for the particular operation being performed can be regulated within fine limits. This is highly important because of the various factors to be considered insofar as the type of abrading material, the metal being spun, the nature of the cutting tool, etc. are concerned. The final product may be easily and cheaply manufactured and does not deteriorate over extended storage periods.

The notation "control material" has reference to a material which controls the melting point of the composition.

I claim:

1. A solid composition for application to cutting and abrading surfaces for preventing "loading" of such surfaces to increase the cutting and grinding action of such surfaces comprising approximately 65% tallow, 29% paraffin, 6% beeswax, and urea in an amount sufficient to determine the melting point of the composition.

2. A composition for application to cutting and abrading surfaces for preventing "loading" of such surfaces to increase the cutting and grinding action of such surfaces comprising approximately 65% tallow, 29% paraffin, 6% beeswax, citric acid, oxalic acid, potassium citrate in quantities sufficient to render the composition odorless, and urea in an amount sufficient to determine the melting point of the composition.

3. A composition for application to cutting and abrading surfaces for preventing "loading" of such surfaces to increase the cutting and grinding action of such surfaces comprising approximately 65% tallow, 29% paraffin, 6% beeswax, citric acid, oxalic acid, potassium citrate in quantities sufficient to render the composition odorless, urea in an amount sufficient to determine the melting point of the composition, and a coloring agent.

4. A solid composition for application to cutting and abrading surfaces for preventing "loading" of such surfaces to increase the cutting and grinding action of such surfaces containing the following ingredients in approximately the proportions stated to provide a 100 pound lot:

Tallow	pounds	65
Paraffin	do	29
Beeswax	do	6
Citric acid	ounces	1.3
Oxalic acid	do	1.3
Potassium citrate	do	1.3
Urea	do	6.6

and Vienna Red in sufficient amount to produce the color desired.

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