It is known that when tertiary amines are treated with suitable oxidizing agents they may be converted into so-called tertiary amine-oxides. Hitherto these products have only been described in scientific literature and there has been no reason to suppose that they could be applied as assistants in the textile industry. It has now been found that certain of these tertiary amine-oxides, i.e. those which, due to their molar magnitude, are not soluble in mercerizing baths, or only sparingly soluble, but which can be dissolved in mercerizing baths with aid of so-called solubility-promoting agents, may be used for the production of excellent wetting agents for mercerizing liquors. In order to produce such wetting agents for mercerizing baths, it is only necessary to mix these amine oxides with the so-called solubility-promoting agents. To the compositions of matter thus obtained there may be added further substances, such as, for example ether alcohols, for instance, glycolmonobutylether, glycerine-monoalkylether and glycerine-dialkylether.

As amine-oxides which come into consideration for carrying out the present invention there may be named amine-oxides derived from tertiary amines which contain at least one radical comprising 3 carbon atoms, such as, for example, the propyldimethylamine-oxide of the formula—

\[
\text{CH}_3 - \text{CH} - \text{CH} - \text{N} = \text{O}
\]

the propyldimethylamine-oxide of the formula—

\[
\text{CH}_3 - \text{CH} - \text{CH} - \text{N} = \text{O}
\]

the butyldimethylamine-oxide of the formula—

\[
\text{CH}_3 - \text{CH} - \text{CH} - \text{CH} - \text{N} = \text{O}
\]

the dipropyldimethylamine-oxide of the formula—

\[
\text{CH}_3 - \text{CH} - \text{CH} - \text{N} = \text{O}
\]

the butyldimethylamine-oxide of the formula—

\[
\text{CH}_3 - \text{CH} - \text{CH} - \text{CH} - \text{N} = \text{O}
\]

the N-butylpiperidine-oxide of the formula—

\[
\text{CH}_3 - \text{CH} - \text{CH} - \text{CH} - \text{N} = \text{O}
\]

etc. All these compounds are oxides derived from such tertiary amines which contain not more than 12 carbon atoms and which contain at least one radical which comprises at least 3 carbon atoms. Of these amine-oxides, those are particularly valuable which are derived from non-aromatic tertiary amines; further those non-aromatic tertiary amines which contain at least one radical comprising 4 to 6 carbon atoms. But if use is made of amine-oxides which are derived from tertiary amines containing higher aliphatic radicals, such as, for example, the dodecyldimethylamine oxide, no compositions of matter are obtained which are useful as wetting agents, for mercerizing baths, since the solubility-promoting agent is no longer capable of keeping such highly molecular amine-oxides in solution in mercerizing baths. The low molecular amine-oxides, such as trimethylamine-oxide or triethylamine-oxide are useless, since as such they are too easily soluble in the mercerizing baths.

Solubility-promoting agents, i.e. products which have been selected from a group of compounds consisting of phenols, or highly sulfonated oils, and which have the property of increasing the solubility of organic compounds in mercerizing baths, are for example, phenol itself, the various cresols, crude cresol, phenols substituted in the aromatic nucleus by alkyl radicals com-
prising more than one carbon atom such as the alkyl- or propyl-phenols, highly sulfonated castor oil and the like.

The following examples illustrate the invention, the parts being by weight:—

Example 1

25 parts of butyldimethylamine-oxide are mixed with 75 parts of crude cresol. The mixture may be used forthwith as an assistant in mercerization. A stable, clear solution is obtained, if instead of 75 parts of crude cresol a mixture of 65 parts of crude cresol, and 10 parts of glacial acetic acid is used.

Example 2

To a mercerization liquor (sodium hydroxide solution of 30° Bé.) there is added, per litre, 5 grams of a mixture of 25 parts of butyldimethylamine-oxide and 75 parts of crude cresol. There is produced a solution clear as water. When tested for its capacity for producing shrinkage, measured by the Büret method described in Melliands Textilberichte 1928, page 763, on cotton yarn the liquor thus prepared gave, as compared with the mercerizing liquor without the addition, the following shrinkage values (original length of thread=50 units):—

<table>
<thead>
<tr>
<th>Seconds</th>
<th>Liquor without addition</th>
<th>Liquor with addition</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>49.7</td>
<td>46.8</td>
</tr>
<tr>
<td>35</td>
<td>49.2</td>
<td>46.0</td>
</tr>
<tr>
<td>45</td>
<td>48.8</td>
<td>43.8</td>
</tr>
<tr>
<td>60</td>
<td>48.4</td>
<td>43.4</td>
</tr>
<tr>
<td>75</td>
<td>48.0</td>
<td>43.2</td>
</tr>
<tr>
<td>90</td>
<td>47.7</td>
<td>43.1</td>
</tr>
</tbody>
</table>

The liquor to which the addition has been made remains quite clear even on long standing and after 72 hours has the same shrinkage values as those recorded with the liquor immediately after addition has been made.

Example 3

To the mercerizing liquor there is added, per litre, 5 grams of a mixture consisting of 38.5 parts of dimethylaniline-oxide and 61.5 parts of crude cresol. This addition remains fully dissolved in the mercerizing liquor. The tests made in the same manner as described in Example 2 gave the following shrinkage values:—

<table>
<thead>
<tr>
<th>Seconds</th>
<th>Liquor without addition</th>
<th>Liquor with addition</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>49.6</td>
<td>48</td>
</tr>
<tr>
<td>35</td>
<td>49.2</td>
<td>45.9</td>
</tr>
<tr>
<td>45</td>
<td>48.8</td>
<td>44.8</td>
</tr>
<tr>
<td>60</td>
<td>48.4</td>
<td>44.3</td>
</tr>
<tr>
<td>75</td>
<td>48.0</td>
<td>43.7</td>
</tr>
<tr>
<td>90</td>
<td>47.7</td>
<td>43.5</td>
</tr>
</tbody>
</table>

A like mixture, which contains dimethylaniline instead of dimethylaniline-oxide is completely useless on account of the immediate separation of the base.

For the foregoing amine-oxides there may be substituted n-buty1-piperidine-oxide, benzylpiperidine-oxide, dimethyl-cyclo-hexylamine-oxide, diethylcyclohexylamine-oxide, methyloxyethyl-cyclohexylamine-oxide or mixtures of any of these, or the like.

What we claim is:—

1. A composition of matter comprising a solubility-promoting agent and a tertiary amine oxide which is sparingly soluble in mercerizing baths, but which is soluble in mercerizing baths with the aid of a solubility-promoting agent selected from the group consisting of phenols and highly sulfonated oils.
2. A composition of matter comprising crude cresol and an amine-oxide which is sparingly soluble in mercerizing baths, but which is soluble in mercerizing baths with the aid of crude cresol.
3. A composition of matter comprising a solubility-promoting agent selected from the group consisting of phenols and highly sulfonated oils and a tertiary amine-oxide derived from a non-aromatic tertiary amine containing not more than 12 carbon atoms and at least one radical containing at least 4 and at the most 6 carbon atoms.
4. A composition of matter comprising a phenol and a tertiary amine-oxide derived from a non-aromatic tertiary amine containing not more than 12 carbon atoms and at least one radical containing at least 4 and at the most 6 carbon atoms.
5. A composition of matter comprising crude cresol and a tertiary amine-oxide derived from a non-aromatic tertiary amine containing not more than 12 carbon atoms and at least one radical containing at least 4 and at the most 6 carbon atoms.
6. A composition of matter comprising a solubility-promoting agent selected from the group consisting of phenols and highly sulfonated oils and a tertiary amine-oxide derived from a non-aromatic tertiary amine containing at least 6 and at the most 8 carbon atoms, and in which two methyl groups are linked to the nitrogen atom.
7. A composition of matter comprising a phenol and a tertiary amine-oxide derived from a non-aromatic tertiary amine containing at least 6 and at the most 8 carbon atoms, and in which two methyl groups are linked to the nitrogen atom.
8. A composition of matter comprising crude cresol and a tertiary amine-oxide derived from a non-aromatic tertiary amine containing at least 6 and at the most 8 carbon atoms, and in which two methyl groups are linked to the nitrogen atom.
10. A composition of matter comprising crude cresol and butyldimethylamine-oxide.
11. A composition of matter consisting of a mixture of 70 to 95 parts of a phenol and 5 to 30 parts of butyldimethylamine-oxide.
12. A composition of matter consisting of a mixture of 70 to 95 parts of crude cresol and 5 to 30 parts of butyldimethylamine-oxide.
13. A composition of matter comprising a solubility-promoting agent selected from the group consisting of phenols and highly sulfonated oils and dimethylcyclohexylamine-oxide.
15. A composition of matter consisting of a mixture of about 85 to 95 parts of crude cresol and 5 to 15 parts of dimethylcyclohexylamine-oxide.