**INTRODUCTION**

Neelikon offers the complete range of aluminium lake colours made from primary food colours. Aluminum lakes are produced by the absorption of a water-soluble dye onto hydrated aluminum substrate rendering the colour insoluble in water. The end product is coloured either by dispersion of the lake into the product, or by coating onto the surface of the product.

In general lakes are more stable than the corresponding water-soluble dyes, producing brighter more vivid colours and are most suitable for products containing oils and fats, or products lacking sufficient moisture to dissolve dyes.

**DIFFERENCE BETWEEN LAKES AND DYES**

A dye is a distinct chemical material, which exhibits colouring power or tinctorial strength when dissolved. A pigment generically is an insoluble material, which colours by dispersion. The lakes consist of a substratum of alumina hydrate on which the dye is absorbed or precipitated. Having aluminium hydroxide as the substrate, the lakes are insoluble in nearly all solvents.

Generally, regulations specify a minimum of 85% pure dye for the primary soluble dyes. Most lots will be in the range of 88% - 92% pure. The lakes, on the other hand, do not have a specified minimum dye content and typically range from 8% - 40% pure dye.

**COLOURING PROPERTY OF LAKES**

BEWARE that pure dye in lakes in no way co-relates to the colour value or colouring property/ability of the lake. Since lakes are pigments, their colouring is achieved through dispersion of tiny colour particles. The more finely ground the colour particles; the more effective a lake will be.

Neelikon offers an extremely high colouring property by ensuring minimum particle size with minimum degree of variance. Since the colouring property of lakes is more dependent on the fineness of the lakes than the pure dye present, it is important to test the parameter of particle size before comparing prices. Greater fineness means less colour needs to be used in an end product, resulting in substantial savings in cost.

We strongly believe by using NEELILAKES, you will make substantial cost savings, as we give an extremely high colouring property by offering an extremely ground product of extreme fineness.
**INTRODUCTION**

Neelikon offers the complete range of aluminium lake colours made from primary food colours. Aluminum lakes are produced by the absorption of a water-soluble dye onto hydrated aluminum substrate rendering the colour insoluble in water. The end product is coloured either by dispersion of the lake into the product, or by coating onto the surface of the product.

In general lakes are more stable than the corresponding water-soluble dyes, producing brighter more vivid colours and are most suitable for products containing oils and fats, or products lacking sufficient moisture to dissolve dyes.

**DIFFERENCE BETWEEN LAKES AND DYES**

A dye is a distinct chemical material, which exhibits colouring power or tinctorial strength when dissolved. A pigment generically is an insoluble material, which colours by dispersion. The lakes consist of a substratum of alumina hydrate on which the dye is absorbed or precipitated. Having aluminium hydroxide as the substrate, the lakes are insoluble in nearly all solvents.

Generally, regulations specify a minimum of 85% pure dye for the primary soluble dyes. Most lots will be in the range of 88% - 92% pure. The lakes, on the other hand, do not have a specified minimum dye content and typically range from 8% - 40% pure dye.

**COLOURING PROPERTY OF LAKES**

**Beware** that pure dye in lakes in no way correlates to the colour value or colouring property/ability of the lake. Since lakes are pigments, their colouring is achieved through dispersion of tiny colour particles. The more finely ground the colour particles; the more effective a lake will be.

Neelikon offers an extremely high colouring property by ensuring minimum particle size with minimum degree of variance. Since the colouring property of lakes is more dependent on the fineness of the lakes than the pure dye present, it is important to test the parameter of particle size before comparing prices.

Greater fineness means less colour needs to be used in an end product, resulting in substantial savings in cost.

We strongly believe by using NEELILAKES, you will make substantial cost savings, as we give an extremely high colouring property by offering an extremely ground product of extreme fineness.

**BATCH TO BATCH CONSISTENCY**

Neelikon has developed a unique manufacturing process, which leads to consistency of shade from batch to batch. Furthermore Neelikon has developed an in-house testing procedure, which allows each batch to be accurately matched with standards for shade and colour strength. This ensures consistent shade, eliminating shade variation problems, a common complaint with users. This saves you time and money.

**BLENDS & DISPERSIONS**

Lakes can be blended to produce an infinite number of shades to meet customer requirements. Dry blends and dispersions in suitable vehicles provide appropriate mediums for product use. For food & pharmaceutical uses propylene glycol, glycerol and sugar syrups are regularly used. Some of the advantages of using blends and dispersions are:

- Customized colour matching.
- Ensures batch to batch uniformity.
- Reduces risk of contamination.
- Ready to use — easy incorporation into production.
- Easy to use — avoids errors of mixing and shade matching.
- Cleaner to use — avoids dusting.

**APPLICATIONS**

**Food Uses**

- **Bakery Products:**
  Icings, fillings, sugar decorations and oil based coatings.

- **Confectionery:**
  Candy and confectionery coatings and chewing gums.

- **Dairy Products:**
  Ice creams, yogurts and wax coatings for cheese.

- **Dessert Products:**
  Gelatins, puddings and beverage bases.

- **Seasoning Products:**
  Snack food coatings and mixes, spice mixes.

**Pharmaceutical**

- Coated and compressed tablets, gelatin (soft and hard) capsules.

**Non Food Uses**

- **Personal Care:**
  Lipsticks, blushers, creams. Lotions and cosmetic powders.

- **Packaging:**

  (Medium and high strength lakes are recommended for these applications).

- **Inks:**
  Flexographic and lithographic
  (High strength lakes are recommended for use in inks).
INTRODUCTION

Neelikon offers the complete range of aluminium lake colours made from primary food colours. Aluminium lakes are produced by the absorption of a water-soluble dye onto hydrated aluminium substrate rendering the colour insoluble in water. The end product is coloured either by dispersion of the lake into the product, or by coating onto the surface of the product.

In general lakes are more stable than the corresponding water-soluble dyes, producing brighter more vivid colours and are most suitable for products containing oils and fats, or products lacking sufficient moisture to dissolve dyes.

DIFFERENCE BETWEEN LAKES AND DYES

A dye is a distinct chemical material, which exhibits colouring power or tinctorial strength when dissolved. A pigment generically is an insoluble material, which colours by dispersion. The lakes consist of a substratum of alumina hydrate on which the dye is absorbed or precipitated. Having aluminium hydroxide as the substrate, the lakes are insoluble in nearly all solvents.

Generally, regulations specify a minimum of 85% pure dye for the primary soluble dyes. Most lots will be in the range of 88% - 92% pure. The lakes, on the other hand, do not have a specified minimum dye content and typically range from 8% - 40% pure dye.

COLOURING PROPERTY OF LAKES

Beware that pure dye in lakes in no way correlate to the colour value or colouring property/ability of the lake. Since lakes are pigments, their colouring is achieved through dispersion of tiny colour particles. The more finely ground the colour particles; the more effective a lake will be. Neelikon offers an extremely high colouring property by ensuring minimum particle size with minimum degree of variance. Since the colouring property of lakes is more dependent on the fineness of the lakes than the pure dye present, it is important to test the parameter of particle size before comparing prices. Greater fineness means less colour needs to be used in an end product, resulting in substantial savings in cost.

We strongly believe by using NEELILAKES, you will make substantial cost savings, as we give an extremely high colouring property by offering an extremely ground product of extreme fineness.

BATCH TO BATCH CONSISTENCY

Neelikon has developed a unique manufacturing process, which leads to consistency of shade from batch to batch. Furthermore Neelikon has developed an in-house testing procedure, which allows each batch to be accurately matched with standards for shade and colour strength. This ensures consistent shade, eliminating shade variation problems, a common complaint with users. This saves you time and money.

BLENDS & DISPERSIONS

Lakes can be blended to produce an infinite number of shades to meet customer requirements. Dry blends and dispersions in suitable vehicles provide appropriate mediums for product use. For food & pharmaceutical uses propylene glycol, glycerol and sugar syrups are regularly used. Some of the advantages of using blends and dispersions are:

• Customized colour matching.
• Ensures batch to batch uniformity.
• Reduces risk of contamination.
• Ready to use — easy incorporation into production.
• Easy to use — avoids errors of mixing and shade matching.
• Cleaner to use — avoids dusting.

ADVANTAGES & LIMITATIONS

• Stability to light — It is better than water-soluble dyes.
• Stability to Acids and Alkalies — Satisfactory between pH 4-9.
• Solubility — Virtually insoluble in solvents and should have "minimal bleed" in water of typically less than 5mg/kg.
• Provides bright and vivid colours.
• Lakes are suitable for products containing oils and fats as well as those lacking sufficient moisture to dissolve dyes.
• Lack of interchangeability between colour suppliers, as minor batch to batch variation is common in pigments.

Pharmaceuticals
• Coated and compressed tablets, gelatin (soft and hard) capsules.

Non Food Uses
• Personal Care:
  Lipsticks, blushers, creams. Lotions and cosmetic powders.
• Packaging:
  (Medium and high strength lakes are recommended for these applications).
• Inks:
  Flexographic and lithographic
  (High strength lakes are recommended for use in inks).

Specific details on use and incorporation of lakes into various products types are available on request. Reference should always be made to use and limitations of colours by regulatory organisations before incorporation of colours into products.

This information is given based on our general experience however, due to the many factors that are outside our control, we cannot accept liability from reliance on this information for any circumstances.
### US FDA Certified Aluminium Lakes

<table>
<thead>
<tr>
<th>Product Name</th>
<th>C.I. No.</th>
<th>Food Colour No.</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>High Strength</th>
<th>Middle Strength</th>
<th>Low Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>FD&amp;C Yellow 5 Lake</td>
<td>19140:1</td>
<td>Yellow 4:1</td>
<td>12225-21-7</td>
<td>E-102</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>FD&amp;C Yellow 6 Lake</td>
<td>15985:1</td>
<td>Yellow 3:1</td>
<td>15790-07-5</td>
<td>E-110</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>FD&amp;C Red 40 Lake</td>
<td>16035:1</td>
<td>Red 17</td>
<td>68583-95-9</td>
<td>E-129</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>FD&amp;C Blue 2 Lake</td>
<td>73015:1</td>
<td>Blue 1:1</td>
<td>16521-38-3</td>
<td>E-132</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>FD&amp;C Blue 1 Lake</td>
<td>42090:2</td>
<td>Blue 2:1</td>
<td>68921-42-9</td>
<td>E-133</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### EC Approved Aluminium Lakes

<table>
<thead>
<tr>
<th>Product Name</th>
<th>C.I. No.</th>
<th>Food Colour No.</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>High Strength</th>
<th>Middle Strength</th>
<th>Low Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tartrazine Lake</td>
<td>19140:1</td>
<td>Yellow 4:1</td>
<td>12225-21-7</td>
<td>E-102</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Quinoline Yellow Lake</td>
<td>47005:1</td>
<td>Yellow 13:1</td>
<td>100208-62-6</td>
<td>E-104</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sunset Yellow FCF Lake</td>
<td>15985:1</td>
<td>Yellow 3:1</td>
<td>15790-07-5</td>
<td>E-110</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Carmoisine Lake</td>
<td>14720:1</td>
<td>Red 3:1</td>
<td>53026-69-9</td>
<td>E-122</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Amaranth Lake</td>
<td>16185:1</td>
<td>Red 9:1</td>
<td>1227-62-2</td>
<td>E-123</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ponceau 4R Lake</td>
<td>16255:1</td>
<td>Red 7:1</td>
<td>15876-47-8</td>
<td>E-124</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Erythrosine Lake</td>
<td>45430:1</td>
<td>Red 14:1</td>
<td>12227-78-0</td>
<td>E-127</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Red 2G Lake</td>
<td>18050</td>
<td>Red 10</td>
<td></td>
<td>E-128</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Allura Red Lake</td>
<td>16035:1</td>
<td>Red 17</td>
<td>68583-95-9</td>
<td>E-129</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Patent Blue V Lake</td>
<td>42051:1</td>
<td>Blue 5:1</td>
<td>3536-49-0</td>
<td>E-131</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Indigo Carmine Lake</td>
<td>73015:1</td>
<td>Blue 1:1</td>
<td>16521-38-3</td>
<td>E-132</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Brilliant Blue FCF Lake</td>
<td>42090:2</td>
<td>Blue 2:1</td>
<td>68921-42-6</td>
<td>E-133</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Brown HT Lake</td>
<td>20285</td>
<td>–</td>
<td>–</td>
<td>E-155</td>
<td>NA</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Black PN Lake</td>
<td>28440</td>
<td>–</td>
<td>–</td>
<td>E-151</td>
<td>NA</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Green S Lake</td>
<td>44090</td>
<td>Green 4</td>
<td>–</td>
<td>E-142</td>
<td>NA</td>
<td>NA</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Aluminium Lake Blends

- **Herbal Green Lake**: 313 LB 04 02
- **Pea Green Lake**: 313 LB 04 01
- **Brown Lake**: 324 LB 11 00
- **Chocolate Brown Lake**: 326 LB 04 00
- **Black Z Lake**: 316 LB 04 00
- **Violet Lake**: 318 LB 04 00

*Shades depicted are for reference only. Clients are advised to check actual samples for shade matching.*

**Legends:**
- C.I. No. = Colour Index Number
- CAS No. = Chemical Abstract Serial Number
- EC No. = European Commission Directive Number
- NA = Not Available
- – = Not Applicable