JFE Metal Products Corporation offers a wide range of River Brand procelain enamel products. Surfaces for chalkboards, markerboards, projection screens and sheet for building interior.
Porcelain enamel production technology which initiated 4000 years ago is succeeded in today's world through our latest technology.
Are you planning to upgrade your Chalkboard, Markerboard or Projection Screen?

Choose the best fit for your application from our product lineup. JFE Metal Products Corporation is delighted to support upgrading educational & business rooms, commercial facilities, house interior by creating a comfortable atmosphere through supplying our River Enamel products.
River Enamel for Markerboards

Enjoy the comfort of smooth writing & erasing. Surfaces are easy on human eyes and creates a bright atmosphere. Low gloss type is also available.

Marker Boards

Color Image

Comfortable writing & erasing in conference and class rooms. Documents and notices can be easily attached by magnets. Low gloss type can be used as a projection surface for presentations and discussions. A wide variety of River Enamel is available for your application.
Features

Low reflection avoids eyestrain and very easy on human eyes. Fine surface particles enables extremely smooth writing and erasing. As a result, River Enamel enhances communication in class rooms and conference rooms.

Durable
High abrasion resistance is obtaind through JFE’s baking technology at high temperature (approx. 800°C)

Economic
The durable surface last for so long. Recoating, replacement of surface is usually not required. Maintenance costs are minimal and investment costs ends up being very low.

Magnets Attachable
Documents and notes etc. can be easily attached by magnets.

Grid Pattern Available
(Grid lines are also porcelain enamel)
Grid pattern can be printed. They are very helpful to write letters, diagrams, graphs neatly. JFE’s grid pattern consists of a combination of solid and dotted lines. There is no need to worry about erase nor wear off of the grid lines because they are also porcelain enamel that are embedded by our baking process.

Other Usages
River Enamel products for markerboards can also be used in many applications such as partitions and menu boards. (→ P11)

A Projectionable Markerboard Surface B-455-SM

Halation has been minimized by our surface frosting technology for the purpose of better projecting performance.

Gloss level has been reduced for better projection performance, so erasability is inferior to other white board surfaces. Confirmation of erasability of the surface is recommended through large size samples.

A marker board can also be used for projection purpose
This surface provides comfortable writing and projection with reduced halation.

Applications
● For business presentations.
● For discussions at designer offices
● For class rooms
Two types of Mica Screens are available depending on usage

Structure of Mica Screens
Special mica has been distributed on an embossing finished River Enamel to realize a high performance projection screen. This has enabled us to provide features of both white matt screens and beads screens. The surface offers a wide view angle and high reflection brightness.

<table>
<thead>
<tr>
<th>Item</th>
<th>Mica Screen (Enamel)</th>
<th>White Matt Screen (Cloth)</th>
<th>Beads Screen (Cloth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflection</td>
<td>Difused and Regular Reflection</td>
<td>Difused Reflection</td>
<td>Regressive Reflection</td>
</tr>
<tr>
<td>View Angle</td>
<td>Wide Angle</td>
<td>Wide Angle</td>
<td>Narrow Angle</td>
</tr>
<tr>
<td>Reflection Brightness</td>
<td>High</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Projected Image</td>
<td>Sharp</td>
<td>Soft</td>
<td>Sharp</td>
</tr>
<tr>
<td>Halation</td>
<td>Slight</td>
<td>Scarce</td>
<td>Much</td>
</tr>
</tbody>
</table>

Color Image

Mica Screens

S-952-MM

S-954-MM
Mica Screen for Projection (S-952-MM)

Images projected on Mica Screen are extremely clear. The surface can be used in various places, from theaters to homes.

**Superior Projection Cleareness and Precise Color**
Due to our mica technology S-952-MM provides projection clearness that is acceptable even at high class theater level.

**Wide View Angle**
Thanks to our mica technology, the wide view angle provides all viewers, no matter where they are seated a clear image.

**Wet Erasable**
The surface is wet erasable after writing with white board maker pens.

**Economic**
Maintenance is easy. Stain can be cleaned by wet cloth and there will be no color fade out. Thanks to the durability and abrasion resistance, product life is so long and investment costs ends up being very low.

Mica Screen for Projection & Writing/Erasing (S-954-MM)

Writing & erasing can also be done on a projection screen with S-954-MM. Education programs and presentations become more efficient with both functions. (Perfect match with ultra short throw projectors)

**Clear Projection**
The product was developed for usage with ultra short throw projectors. Projection images are clear thanks to our mica technology.

**Wide View Angle**
Thanks to our mica technology, the wide view angle provides all viewers, no matter where they are seated a clear image.

**Improved Erasability**
Erasability has been improved by increasing the glossiness so that the surface can even be used as a marker board.

**Economic**
Maintenance costs are minimized with the durability of the material which is baked at a high temperature of 800°C.

Erasability Comparison

<table>
<thead>
<tr>
<th>Erasability</th>
<th>B-931-SMR</th>
<th>S-952-MM</th>
<th>S-954-MM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The durable surface ensures a long product life. The soft colors avoid eyestrain and are comfortable on human eyes. The perfect applicability of chalk and smooth erasability is highly recommended for usage in classrooms.

Students usually spend most of the time in their classrooms facing chalkboards. We consider that it is our mission to contribute to educational programs by providing a comfortable environment through the supply of River Enamel. Wide variation of colors are available for various requirements.
The hard surface finish realizes the perfect applicability of chalk and smooth erasability. The colors are very easy on human eyes and are suitable for classrooms.

**Enhanced Durability**
High abrasion resistance is obtained by JFE’s baking technology at high temperature.

**Economic**
The product’s surface last for so long due to the durability. Recoating, replacement is usually not necessary for so long and maintenance costs are minimal. Investment cost end up being very low.

**Magnets Attachable**
Documents and notes etc. can be easily attached by magnets because of the steel substrate.

**Grid Pattern Available**
(Grid lines are also porcelain enamel)
Grid lines can be printed. They are very helpful to write letters, diagrams, graphs neatly on the surface. JFE’s grid pattern consists of a combination of solid and dotted lines. There is no need to worry about erase nor wear off of the grid lines because they are also porcelain enamel that are embedded by our baking process.

**Other Usages**
River Enamel for chalkboards can also be used as a writable surface in interior applications such as walls or columns. (→ P11)

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**A Projectionable Chalkboard Surface S-524-CMM**

Our recent surface treatment technology allows us to provide a chalkboard surface that can also be used as a projection screen. Enjoy the same features that other River Enamel chalkboard surfaces offer. The best projectionable type chalkboard surface for ICT education programs.

**Superior Projection, Erasability**
JFE technology offers a surface for chalkboards not only with superior erasability, but also shows clear images with high brightness when used as a projection surface.

**Economic**
Just simply project images on the chalkboard. Preparation of screens are no longer required. Classroom activities become more efficient. Recoating, replacement is usually not required. Maintenance costs are minimal and investment costs ends up being very low.

**Magnets Attachable**
Documents and notes etc. can be easily attached by magnets because of the steel substrate.

**Improved Grid Pattern**
Color of grids line has been changed to a lighter color so that projected images can be observed with out distraction of the lines.
River Enamel is another choice for interior applications.

The luxurious surface of River Enamel is enjoyed as interior material. Pannels for kitchens are an ideal application for the product. The surface is made of an inorganic, incombustible material similar to glass. Neither smoke nor toxic gas will be generated when exposed to high temperature.

- Luxurious
- Durable and Long lasting
- Easy to Clean
- No Color Fading
- Resistant to Fire
- Magnets Attachable

Color Image

- W-970-SM Pure White
- W-931-SM Cool White
- W-455-SM Creamy White
The glassy surface is very easy to clean up and hygienic. This makes maintenance quite an easy job.

Building Materials

Other Interior Applications

The material is corrosion and abrasion resistant and very strong against moist solar heat, dust, etc which is suitable for modern construction. It is widely used in various applications as a basic material for construction.

Advantages of River Enamel as Construction Material
1. The material is corrosion and abrasion resistant and very strong against moist, solar heat, dust, etc which is suitable for modern construction.
2. Superior abrasion resistance compared to aluminium, plastics, coated steel.
3. The glassy surface is very easy to clean up and hygienic.
4. High chemical resistance.
5. Fire resistant.
6. No fading of colors.
Other Applications for River Enamel

River Enamel Directly Attached to Walls or Columns

Wall at a Corporate Refresh Room  B-455-SM

Columns at Shops  B-001-CM

River Enamel Pannels Attached to Walls

Conference Room  B-931-SM

Menu Boards at a "Kaiten Sushi Shop"  B-002-SM

River Enamel Directly Attached to Curved Walls

Conference Room  B-455-SM
Quality is JFE's Goal

High Quality Steel Substrate
High quality steel that is designated for porcelain enamel production is supplied by JFE Steel for the production of River Enamel. The steel is a unique cold rolled product with ultra low carbon and impurities. JFE Metal Products Corporation and JFE Steel work very close to maintain our world class quality level.

Advanced Coating Technology
The cold rolled steel is nickel coated as pretreatment. After pretreatment, a glassy porcelain enamel layer “ground coat” is coated on both sides of the steel. This is followed by another coat of a layer of porcelain enamel as the top layer “cover coat”. Baking temperature for both layers are 800°C which ensures the durability of River Enamel.

Grid lines are also porcelain enamel that are embedded on to the material with our unique technology.

Stringent Quality Control
By the adoption of CCD cameras in addition to our trained inspector’s visual inspection, River Enamel products clear the highest level of inspection in the world. We are very proud to say that River Enamel quality is based on more than 40 years of experience of production which we believe is your best choice.

The following substances designated by the RoHS Directive as hazardous substances are not included in our products:
(1) Lead
(2) Mercury
(3) Cadmium
(4) Hexavalent chromium
(5) Polybrominated biphenyls (PBB)
(6) Polybrominated dephenyl ether (PBDE)
(7) Bis(2-ethylhexyl)phthalate(DEHP)
(8) Butyl benzyl phthalate(BBP)
(9) Dibutyl phthalate(DBP)
(10) Diloobutyl phthalate(DIBP)
River Enamel Standards

**Product Standards**

**B-505-CMR**

- **Surface Finish**
  - Chalk Mat: CM, No Gloss
  - Semi Mat: SM, Semi Gloss
  - Gloss: G, Gloss
  - Mica Mat: MM, Gloss Controlled

- **End Use Category**
  - B: Markerboard, Chalkboard
  - S: Screen
  - W: Interior

- **Surface Finish**
<table>
<thead>
<tr>
<th>Surface Finish</th>
<th>Character</th>
<th>Surface Glossiness</th>
<th>End-Use</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chalk Mat</td>
<td>CM</td>
<td>No Gloss</td>
<td>Chalkboard</td>
<td>CM = Chalk Mat Roll-Coated</td>
</tr>
<tr>
<td></td>
<td>CMM</td>
<td></td>
<td>Chalkboard and Projection Screen</td>
<td></td>
</tr>
<tr>
<td>Semi Mat</td>
<td>SM</td>
<td>Semi Gloss</td>
<td>Markerboard</td>
<td>SMR = Semi Mat Roll-Coated</td>
</tr>
<tr>
<td>Gloss</td>
<td>G</td>
<td>Gloss</td>
<td>Projection Screen</td>
<td></td>
</tr>
<tr>
<td>Mica Mat</td>
<td>MM</td>
<td>Gloss Controlled</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Width & Length**

<table>
<thead>
<tr>
<th>Coil Width</th>
<th>Coil Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>M</td>
</tr>
<tr>
<td>890</td>
<td>35.06</td>
</tr>
<tr>
<td>914</td>
<td>36.00</td>
</tr>
<tr>
<td>1190</td>
<td>46.85</td>
</tr>
<tr>
<td>1219</td>
<td>48.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coil Width</th>
<th>Coil Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>M</td>
</tr>
<tr>
<td>1500</td>
<td>59.06</td>
</tr>
<tr>
<td>1524</td>
<td>60.00</td>
</tr>
<tr>
<td>1219(24GA)</td>
<td>48.00</td>
</tr>
<tr>
<td>1524(24GA)</td>
<td>60.00</td>
</tr>
</tbody>
</table>

- **Grid Pattern**

<table>
<thead>
<tr>
<th>Coil Width</th>
<th>Grid Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>890mm</td>
<td>Grid Pattern embedded on the whole surface of each coil.</td>
</tr>
<tr>
<td>1190mm</td>
<td>Grid Pattern of 1200mm width embedded in the center portion of each coil surface</td>
</tr>
<tr>
<td>1500mm</td>
<td>Grid Pattern of 900mm width embedded in the center portion of each coil surface</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coil Width</th>
<th>Grid Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 feet (914mm)</td>
<td>Grid Pattern of 900mm width embedded in the center portion of each coil surface</td>
</tr>
<tr>
<td>4 feet (1219mm)</td>
<td>Grid Pattern of 1200mm width embedded in the center portion of each coil surface</td>
</tr>
<tr>
<td>5 feet (1524mm)</td>
<td>Grid Pattern of 1200mm width embedded in the center portion of each coil surface</td>
</tr>
</tbody>
</table>

- **Tips for Users**

  **Chalkboard**
  
  **Daily Maintenance**
  * Clean the surface of the chalkboard with a clean chalkboard eraser, and wipe out particles of chalk.
  * Wipe the surface of the chalkboard with a well wrung-out cloth. Do not use a neutral or alkaline detergent.
  * Use a soft dried cloth to wipe residual moisture away.

  **Precautions**
  * Some types of chalk are incompatible with the chalkboards. The user should check the chalk maker, type, quality, manufacturing processes, and the eraser. Contact our sales force for guidance.
  * No foreign substance should be left on the blackboard. Avoid single and doublesided adhesive tape, wet chalk, and wet erasers.
  * No liquid (such as juice) other than water should contact chalkboards.
  * Clean the eraser as frequently as possible. If necessary with an eraser cleaner to remove accumulated chalk particles.

  **Markerboard**
  
  **Daily Maintenance**
  * Use a clean cloth, clean water and clean the whole surface of the markerboard.

  **Precautions**
  * Please wait until figures and characters dry before erasing. (Ink will remain wet on the surface immediately after writing)
  * Avoid usage of marker pens with bent or soft tips, or when flow of ink is not proper to prevent erasing problems.
  * Avoid usage of an overused eraser which also may lead to erasing problems. Replacement of erasers on a regular basis is recommended.
  * Usage of some marker pens may lead to erasing problems. Please feel free to contact our sales force for guidance.
  * Usage of anhydrous ethanol is recommended in case of removing tough stain.
### For Markerboards

<table>
<thead>
<tr>
<th>Color Number</th>
<th>Color Image</th>
<th>Features</th>
<th>Gloss Level</th>
<th>Writability</th>
<th>Erasability</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-931-SMR</td>
<td></td>
<td>A slightly blue/grey white with a higher gloss level</td>
<td>75% (Gs20')</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>B-946-SMR</td>
<td></td>
<td>A slightly creamy white with a higher gloss level</td>
<td>72% (Gs20')</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>B-901-G</td>
<td></td>
<td>The extremely smooth finish provides perfect erasability</td>
<td>83% (Gs20')</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>B-937-SMR</td>
<td></td>
<td>A slightly creamy white with a lower gloss level.</td>
<td>85% (Gs45')</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>B-938-SM</td>
<td></td>
<td>A slightly creamy white with a lower gloss level.</td>
<td>84% (Gs45')</td>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

### For Projection Screens

<table>
<thead>
<tr>
<th>Color Number</th>
<th>Color Image</th>
<th>Features</th>
<th>Gloss Level</th>
<th>Writability</th>
<th>Erasability</th>
<th>Projection Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-952-MM</td>
<td></td>
<td>A Mica Screen surface for projection screens. Projected images are extremely clear. Excellent view from any point in the room.</td>
<td>23% (Gs45')</td>
<td>D</td>
<td>Wet Erasable</td>
<td>A</td>
</tr>
<tr>
<td>S-954-MM</td>
<td></td>
<td>A Mica Screen surface for projection &amp; writing/erasing. Best match with ultra short throw projectors.</td>
<td>78% (Gs45')</td>
<td>A</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>B-455-SM</td>
<td></td>
<td>A low gloss surface to project on a writing &amp; erasing surface.</td>
<td>60% (Gs45')</td>
<td>A</td>
<td>C</td>
<td>B</td>
</tr>
</tbody>
</table>

### For Chalkboards

<table>
<thead>
<tr>
<th>Color Number</th>
<th>Color Image</th>
<th>Features</th>
<th>Gloss Level</th>
<th>Writability</th>
<th>Erasability</th>
<th>Projection Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-515-SMR</td>
<td></td>
<td>The basic green chalkboard surface. For smooth writing &amp; erasing. The color is very easy on students eyes.</td>
<td>19% (Gs75')</td>
<td>A</td>
<td>A</td>
<td>–</td>
</tr>
<tr>
<td>B-601-CMR</td>
<td></td>
<td>A cool blue color. The color creates a relaxing environment and is good for concentration.</td>
<td>21% (Gs75')</td>
<td>A</td>
<td>A</td>
<td>–</td>
</tr>
<tr>
<td>B-001-CM</td>
<td></td>
<td>For tradition type black color chalkboards.</td>
<td>13% (Gs75')</td>
<td>B</td>
<td>B</td>
<td>–</td>
</tr>
<tr>
<td>S-524-CMM</td>
<td></td>
<td>A projectionable chalkboard surface. An ideal product for ICT educational programs.</td>
<td>21% (Gs75')</td>
<td>A</td>
<td>A+</td>
<td>B</td>
</tr>
</tbody>
</table>

◆Please contact us for colors/sizes not shown in the catalog.
◆Please contact us for all details

A=Excellent, B=Good, C=Acceptable, D=Slightly Inferior
JFE River Enamel is applicable to a wide range of products including markerboards, chalkboards, projection screens and building interior

JFE Metal Products Corporation

Head Office : 11F, Shinagawa Season Terrace,1-2-70 Konan, Minato-ku, Tokyo, Japan 〒108-0075

River Enamel Sales Department :
11F, Shinagawa Season Terrace,1-2-70 Konan, Minato-ku, Tokyo, Japan 〒108-0075
TEL: +81-3-5715-7580  Fax: +81-3-5460-3231

http://www.jfe-kenzai.co.jp/