



## Price List

### Raw Materials

GST INCLUDED - PRICES SUBJECT TO CHANGE WITHOUT NOTICE

#### Feldspars

##### **Soda Feldspar 200S** (Soda Feldspar , Albite, )

$\text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{SiO}_2$

Soda Feldspar  $\text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{SiO}_2$  (also known as Albite) Soda feldspar, because of the stronger fluxing action of soda, has a melting point about 30C below that of potash feldspar and is most useful for the lower and middle temperature range. Compared with potash feldspar the colour obtained with soda is slightly more intense.

**Price Options**      500g: \$4.25 per bag      2.5kg: \$14.20 per bag      25kg bag: \$72.75 per bag

---

##### **Cryolite** (Sodium Aluminum Fluoride, , )

$\text{Na}_3\text{AlF}_6$

A natural mineral associated with granites. It is used in the preparation of vitreous enamels and occasionally in fritts and glazes. Cryolite, Albite(Soda Feldspar)and nepheline are the only native compounds that are insoluble in water. Found mainly on the west coast of Greenland it is now also produced artificially. Associated minerals include quartz, fluorite and molybdenite.

**Price Options**      500g: \$9.10 per bag      2.5kg: \$43.10 per bag      25kg bag: \$0.00 per bag

---

##### **Cornish Stone** (Cornwall Stone, China Stone, Carolina Stone)

This is a crushed rock (partially decomposed granite) which is not a single material like china clay or silica, but is composed of feldspar, quartz baolinite, mica and fluorspar. It is sometimes used as a substitute for feldspar as it contains several fluxes such as soda, potash, magnesia and calcia. It is also used to give whiteness to bodies as it is almost free of iron and is used in both high and low firing glazes.

**Price Options**      500g: \$9.05 per bag      2.5kg: \$42.85 per bag

---

##### **Potash Feldspar 200 FPR** (Potash Feldspar , Potash Spar, Orthoclase)

$\text{K}_2\text{O} \cdot \text{Na}_2\text{O} \cdot 6\text{SiO}_2$

Feldspars are major fluxes in all clay bodies, secondary fluxes in low temperature glazes, and the principal materials and fluxes in high temperature stoneware glazes.

Potash Feldspar (also known as Orthoclase, Potash spar) The most common and widely used feldspar. It starts to melt at about 1150C and forms into a stiff glaze at about 1200C, but to turn it into a useable glaze requires additional silica and fluxes like whiting or talc or dolomite for stoneware.

**Price Options**      500g: \$4.25 per bag      2.5kg: \$13.65 per bag      25kg bag: \$70.00 per bag

---

##### **Nepheline Syenite 300** (Nepheline Syenite A-270, , )

$\text{K}_2\text{O} \cdot 3\text{Na}_2\text{O} \cdot 4\text{Al}_2\text{O}_3 \cdot 8\text{SiO}_2$

Nephelene Syenite is a feldspathic material in which the levels of silica are low in comparison to other feldspars. As a result its melting point is lower than with other feldspars. The material is high in soda and is usefully used in medium temperature glazes and in cases where a feldspar substitution is used to lower the maturing temperature of a glaze.

**Price Options**      500g: \$4.00 per bag      2.5kg: \$12.50 per bag      25kg bag: \$67.50 per bag

---

##### **Petalite** (Lepidolite, , )

$\text{Li}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 8\text{SiO}_2$

This is a Lithium Feldspar used in glazes as a source of lithium oxide ( $\text{Li}_2\text{O}$ ) together with alumina and silica. This useful material for introducing lithia avoids the solubility of lithium carbonate.

**Price Options**      500g: \$8.50 per bag      2.5kg: \$40.10 per bag      25kg bag: \$0.00 per bag

---

##### **Spodumene CM** (Spodumene 212micron, Petalite, )

$\text{Li}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 4\text{SiO}_2$

Spodumene is a useful source of lithia ( $\text{Li}_2\text{O}$ ) in glazes. Spodumene has lower levels of  $\text{SiO}_2$  which makes it easier to use than Petalite in glazes where other sources of  $\text{SiO}_2$  are needed.

**Price Options**      500g: \$12.25 per bag      2.5kg: \$58.85 per bag      25kg bag: \$406.75 per bag

---

## Clays

### Ball Clay Steetly FX (Ball Clay FX, , )

Al<sub>2</sub>O<sub>3</sub>.2SiO<sub>2</sub>.H<sub>2</sub>O

Ball clays are highly plastic sedimentary clays used in bodies to improve workability, and in glazes to introduce silica and alumina. They have another equally important role as a suspending agent in glazes and due to their relatively high shrinkage are useful components of raw glazes where shrinkage is necessary to ensure adhesion to the pot.

**Price Options**    500g: \$4.00 per bag    2.5kg: \$11.40 per bag    25kg bag: \$57.50 per bag

---

### Bentonite (Rheogel L, , )

Al<sub>2</sub>O<sub>3</sub>4SiO<sub>2</sub>H<sub>2</sub>OxH<sub>2</sub>O

Weathered decomposed volcanic ash origin. Highly colloidal (gluey) clay. Up to 5% added to a clay body improves its plasticity. In glazes (1-3%) makes an excellent suspender ( added to dry ingredients). High shrinkage at stoneware temperatures.

**Price Options**    500g: \$4.00 per bag    2.5kg: \$9.35 per bag    25kg bag: \$43.25 per bag

---

### China Clay Kaolin 300 (Kaolin 300, Kaolin, )

Al<sub>2</sub>O<sub>3</sub>.2SiO<sub>2</sub>.2 H<sub>2</sub>O

A pure highly refractory white firing primary kaolin clay, used in clay bodies to develop whiteness and in glazes to introduce alumina and silica.

**Price Options**    500g: \$4.50 per bag    2.5kg: \$13.35 per bag    25kg bag: \$70.25 per bag

---

### Fire clay (Fireclay FG30, , )

A refractory clay used as an additive to stoneware bodies to produce a more open texture and porosity, or to reduce the risk of warping and cracking in drying. Also used as a mortar in kiln building and repair.

**Price Options**    500g: \$4.00 per bag    2.5kg: \$14.85 per bag    15kg bag: \$50.70 per bag

---

## Fritts

### Gillespie Borate (, , )

A blended borate mineral for use in glaze formulas replacing Gertsley Borate on a kilogram for kilogram basis. Applications for Raku, Earthenware and Stoneware requiring high borate content.

Virtually identical to Gertsley Borate, this product requires no adjustment to formula, and no extra additives. Particle size 200mesh. Excellent over a wide range of temperatures from below cone 06 to cone 10.

**Price Options**    500g: \$7.10 per bag    2.5kg: \$33.10 per bag    22.7kg bag: \$227.25 per bag

---

### Ferro 4113 Hard Borax (Standard Borax Fritt 4113, Borax fritt, )

A standard medium to hard leadless fritt good for lowering firing ranges of stoneware glazes. It has a higher potash (K<sub>2</sub>O) content than Ferro 4110. It can be used in conjunction with Fritt 2950 to produce glazes for the 1080 to 1150 deg.C range or on its own with 5 - 10% china clay. Softening Point 653 deg.C, Coef.Exp (10x-7) 0.67

**Price Options**    500g: \$7.70 per bag    2.5kg: \$36.05 per bag    25kg bag: \$266.00 per bag

---

### Ferro 4101 Alkaline (High Alkaline Fritt 4101(was 5301 also 4125), Alkaline Fritt, )

Raku Fritt 4101 (was 5301 also 4125) A highly alkaline fritt. High expansion with low firing temperature. Especially suitable for raku work. Softening Point 538C Coef.Exp (10x-7).99

**Price Options**    500g: \$9.00 per bag    2.5kg: \$42.50 per bag    25kg bag: \$279.00 per bag

---

### Ferro 4124 Med. Borax (Medium Borax Fritt 4124 (was 3124), Borax Fritt, )

Majolica Fritt 4124 (was 3124) Similar to the medium soft borax fritt but with more alumina. Good for colour enhancement. Produces milky gloss when used alone, ie 1020C - 1120C. Softening Point 622C. Coef Exp.(10x-7).74

**Price Options**    500g: \$8.30 per bag    2.5kg: \$39.20 per bag    25kg bag: \$257.25 per bag

---

### Ferro 4110 Alkaline ( Medium Soft Alkaline Fritt 4110 (was3110), alkaline fritt, )

Medium Soft Alkali Fritt 4110 (was 3110) A high soda (Na<sub>2</sub>O) fritt with a high expansion. Used for copper turquoises or manganese purples, also to produce craquelé effects and to soften high firing glazes by replacing feldspars. A 7% addition plus 3% China Clay improves glaze fit with underglaze decorated once-fired ware. Used alone or in conjunction with 4171 to produce copper blues and manganese purple glazes. Also used as a low cost leadless flux for engobes, etc. Softening Point, 575C. Coef.Exp (10x-7).97

**Price Options** 500g: \$8.15 per bag 2.5kg: \$38.25 per bag 25kg bag: \$251.00 per bag

---

#### **Ferro 4108 Soft Borax** (Medium Soft Borax Fritt 4108 ( was 3134 or 4508), Borax Fritt, )

Medium Soft Borax Fritt 4108 (was 3134 or 4508) A low alumina soft fritt good for colour enhancing stains due to its high calcium content: can be used to soften hard glazes or combat pinholes or orange peel effect in glazes with a high stain content. Softening Point 618C. Coef.Exp (10x-7).78

**Price Options** 500g: \$8.50 per bag 2.5kg: \$40.00 per bag 25kg bag: \$261.75 per bag

---

#### **Ferro 4064 Lead Bisilicate** (Lead Bisilicate Ferro 4064 ( was GF4364 ), LBS, )

A standard lead bisilicate composition formulated for low lead release as recommended by the British Ceramic Research Association. Useful as a base for rutile additions to produce mottled or break glazes.

Used as a minor component in mixture with frits such as KGF4108, KGF4113, KGF4124 or KGF4131 to produce clear general purpose low lead glazes for earthenware and terra-cotta.

With clay and /or alumina, gloss glazes are formed in the temperature range 950-1100 C. Softening point 465 C. Coef Exp.(10x-7).72 Approx.Lead content of frit: 65% PbO

**Price Options** 500g: \$13.20 per bag 2.5kg: \$63.60 per bag 25kg bag: \$472.50 per bag

---

## Others

#### **Strontium Carbonate** ( , , )

SrCO<sub>3</sub>

Useful flux in mid-range and stoneware glazes. Is the commonest form of strontia in glazes. Has similar effects to Barium Carbonate, although somewhat more refractory.

Strontium Carbonate, unlike Barium Carbonate, is not poisonous and may be used in substitution if one wishes to avoid handling poisonous material. However it is more expensive and not always as readily available.

**Price Options** 500g: \$30.70 per bag 2.5kg: \$150.90 per bag 25kg bag: \$0.00 per bag

---

#### **Borax Pentahydrate** (Sodium Tetraborate Pentahydrate, , )

99.9% Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub>·5H<sub>2</sub>O

Enhances glaze and enamel formulations by initiating glass formation in the early stages of melting. Reduces glass viscosity and surface tension, helping the glaze or enamel to mature rapidly and form a smooth surface. Reduces thermal expansion. Melting temperature 200deg C. A stable product

**Price Options** 500g: \$4.00 per bag 2.5kg: \$14.60 per bag 25kg bag: \$107.50 per bag

---

#### **Barium Carbonate** (Barium Carbonate Light, , )

BaCO<sub>3</sub>

Barium Carbonate is a secondary flux in stoneware glazes (up to 10%) but most frequently it is used to produce a stoney-matt surface (10-20%). It gives characteristic alkaline colour responses, e.g. turquoise when used with copper, purple with manganese dioxide, brilliant blue with cobalt and yellow with iron oxide. Small quantities (2%) are usually used in bodies to prevent scumming.

**Price Options** 500g: \$6.35 per bag 2.5kg: \$29.35 per bag 25kg bag: \$159.00 per bag

---

#### **Dolomite** (Calcium Magnesium Carbonate, Dolomite DSquare, )

CaCO<sub>3</sub>.MgCO<sub>3</sub>

A natural material which combines calcium and magnesium carbonates. Dolomite is used as a source of the fluxes calcium oxide (CaO) and magnesium oxide (MgO) in glaze melts. Generally used as a flux in stoneware glazes although in combination with other fluxes it can be effective down to 1060 deg.C Above 5% it begins to opacify and will eventually produce a matte glaze.

**Price Options** 500g: \$3.50 per bag 2.5k: \$12.85 per bag 25kg bag: \$68.00 per bag

---

#### **Calcite Whiting** (Whiting, Limestone, Marble)

CaCO<sub>3</sub>

The main source of the flux calcium oxide (CaO) in glazes and the most commonly used flux in high temperature glazes. It lends hardness and durability. In large quantities (30-50%) it produces a dull matte effect.

**Price Options**    500: \$3.75 per bag    2.5kg: \$10.10 per bag    25kg bag: \$13,671.00 per bag

---

**Bone Ash** (Calcium Phosphate, , )

Ca<sub>3</sub> (PO<sub>4</sub>)<sub>2</sub>

Ground calcined (usually cattle) bones. It is used as a flux in bodies where the calcia does the fluxing and the phosphorus pentoxide acts as a glass former in the melt and also checks over rapid fusion.

Bone ash is used in a glaze as an opacifier. Small quantities are said to assist the formation of a good chun glaze by introducing phosphorus.

**Price Options**    500g: \$10.50 per bag    2.5kg: \$49.60 per bag    25kg bag: \$334.75 per bag

---

**Colemanite** (Borocalcite, Calcium Borate (hydrated), )

2CaO.3B<sub>2</sub>O<sub>3</sub>.5H<sub>2</sub>O

Used in glazes as a powerful flux introducing calcia and boric oxide. It is particularly active above 1100 deg.C. The material can create problems due to the presence of molecular water which can release during the early stages of the firing causing the glaze to spit off the form and cause crawling.

**Price Options**    500g: \$11.85 per bag    2.5kg: \$56.85 per bag    25kg bag: \$412.75 per bag

---

**Borax** (Sodium borate, , )

Na<sub>2</sub>O.2B<sub>2</sub>O<sub>3</sub>.10H<sub>2</sub>O

A crystalline mineral which is the source of boric oxide with soda. Borax is a chief source of boric oxide for glazes but because it is soluble in water it is advisable to introduce it into the glaze batch in a fritted form. (See Fritts) Pure Borax not stocked by Cobcraft

**Price Options**    500g: \$0.00 per bag    2.5kg: \$0.00 per bag    25kg bag: \$0.00 per bag

---

**Alumina** ( alumina hydrate, alumina trihydrate, )

A1<sub>2</sub>O<sub>3</sub>

Alumina Introduces alumina into glazes to stiffen the melt, increase firing range and resistance to crystallisation. Crawling tendency of glazes with high clay content is reduced by introducing alumina as part replacement for clay. A melting point of 2050 C makes alumina useful for kiln shelf washes.

**Price Options**    500g: \$5.10 per bag    2.5kg: \$23.10 per bag    25kg bag: \$125.00 per bag

---

**Calcium Chloride** (Flocculant, , )

CaCl<sub>2</sub>

A highly soluble and deliquescent crystalline compound. It is used to flocculate clay ( cause clay particles to adhere together) and glaze suspensions. A few drops of a concentrated solution of calcium chloride carefully added to a glaze slop are sufficient to flocculate it.

**Price Options**    500g: \$5.00 per bag    2.5kg: \$22.50 per bag    5kg bag: \$0.00 per bag

---

**Lithium Carbonate** (, , )

Li<sub>2</sub>CO<sub>3</sub>

Lithium Carbonate Li<sub>2</sub>CO<sub>3</sub> A strong alkali with the fluxing action and colour response of soda and potash, but with the advantage of being almost insoluble in water and having a greater resistance to crazing. Inclusion as a secondary flux in an alkaline glaze heightens colour, and increases glaze stability and firing range. Is more expensive than other lithium compounds, (spodumene, petalite, lepidolite)

**Price Options**    500g: \$5.10 per bag    2.5kg: \$123.10 per bag    25kg bag: \$0.00 per bag

---

**Silica** (Silica 350 G Unimin, Silicon dioxide, Flint)

Silica is an essential ingredient of all glazes and clay bodies. The glass-forming material of glaze, it occurs naturally as sand and flint.

Quartz is another form of silica rock which is 100% pure.

It forms into a glass at a temperature of about 1700 C, and the function of the other elements in a glaze is to lower the melting point (fluxes), to increase viscosity and stability (alumina) and to produce opacity. The choice and amounts of these ingredients influence the firing temperature, colour and surface texture.

Feldspars, china clay, ball clay and talc provide some of the silica required in a glaze: the balance if needed is added as flint, quartz or silica.

Flint is also a source of silica in clay bodies (up to 15%) and glazes (up to 20%).

Crazing may be corrected by increasing the amount of flint or silica in body or glaze or both. Quartz is an alternative to, but not a direct replacement of flint, as a source of silica in a glaze or body.

**Price Options**    500g: \$3.50 per bag    2.5kg: \$11.10 per bag    25kg bag: \$59.50 per bag

---

### **Grog - White** (White Grog 10mesh, chamotte, )

Ground pre-fired fireclay used as a body additive to impart strength. Available in Fine and Medium mesh.

Uses: Reducing shrinkage in drying and firing of plastic clays.

Clay body additive to help prevent cracking or warping.

Texture making addition to clay bodies.

Shelf coating.

Firebrick manufacture

**Price Options**    500g: \$4.60 per bag    2.5kg: \$20.35 per bag    25kg bag: \$137.25 per bag

---

### **Plaster of Paris** (Casting Plaster, Gypsum, )

CaSO<sub>4</sub> 2H<sub>2</sub>O Hydrated calcium sulphate

Plaster of Paris (Hydrated form of calcium sulphate) Produced from the mineral gypsum. Used for making working moulds, batts and clay drying slabs.

**Price Options**    500g: \$0.00 per bag    2.5kg: \$7.10 per bag    20kg bag: \$27.60 per bag

---

### **Silica Sand** ( , , )

SiO<sub>2</sub>

Natural ground quartz. Pure silica sand is a source of silica for frits, glazes and glass, however it is the milled silica (200 or 300 mesh) that is more commonly used in glazes. It is used for placing white earthenware and stoneware in saggars and as a filler in both earthenware and stoneware.

**Price Options**    500g: \$3.50 per bag    2.5kg: \$8.80 per bag    25kg bag: \$25.00 per bag

---

### **Soda Ash** (Sodium Carbonate, Soda Ash Dense, )

Na<sub>2</sub>CO<sub>3</sub>

Soda Ash Na<sub>2</sub>CO<sub>3</sub> Sodium carbonate A source of sodium in glazes creating a brilliant colour response similar to that of potassium. Due to its high solubility however it is more commonly used in the preparation of frits. In combination with sodium silicate it is also used to deflocculate casting slips.

**Price Options**    500g: \$4.00 per bag    2.5kg: \$15.00 per bag    25kg bag: \$46.80 per bag

---

### **Talc** (Talc SA50 , French Chalk, , Magnesium Silicate)

3MgO4SiO<sub>2</sub> H<sub>2</sub>O

Talc. Used as a flux in bodies, particularly those fired at low temperatures. A secondary flux in both high and low fired glazes, introducing magnesium and silica. In large quantities produces an opaque semi-matte or vellum appearance.

**Price Options**    500g: \$4.00 per bag    2.5kg: \$10.10 per bag    25kg bag: \$50.00 per bag

---

### **Wollastonite** (Kemolit S4, Calcium Silicate, )

CaO.SiO<sub>2</sub>

Wollastonite A source of calcium in glazes particularly the stoneware type. When used in glazes it forms crystals during cooling to give opacity and a matte quality to the glaze.

There is not a great deal to be gained from its use, for matt effects caused by its presence are easily obtained in glazes high in silica and calcia, from which wollastonite crystallizes during cooling.

**Price Options**    500g: \$4.00 per bag    2.5kg: \$14.85 per bag    25kg bag: \$85.50 per bag

---

## **Colourants**

### **Zinc Oxide** ( , , )

ZnO

A useful flux in the middle of high temperature ranges for oxidation firings. In small amounts is very active, contributing to a smooth, even and trouble-free glaze, lending hardness and stability, also increasing craze resistance. However, glazes which rely mainly on zinc oxide as a flux have a tendency to crawl and may also be subject to pitting and pin-holing.

Zinc used in larger quantities (5-15%) produces opacity, matteness and crystalline effects, and can be used to supplement opacifiers such as tin. Zinc has a decided influence on colour depending also on other fluxes present.

Best with cobalt and copper, variable with iron and manganese. Contributes to opacity when used in conjunction with Zirconium (1-4%)

**Price Options** 500g: \$8.10 per bag  
2.5kg: \$37.95 per bag 25kg bag: \$0.00 per bag

**Black Iron Oxide 318** (Ferrous Oxide, , ) FeO

Has a higher iron content than Red Iron Oxide and gives darker colours. When used in reduction glazes .5-1.5% produces light cool greens and green-browns, 2-4% olive to brown, 4-8% and over brown to black.

**Price Options** 500g: \$9.00 per bag  
2.5kg: \$37.00 per bag 25kg bag: \$0.00 per bag

**Burnt Umber** (Brown Oxide, , )

An umber calcined at low heat. A naturally occurring brown earth containing ferric oxide together with silica, alumina, manganese oxides and lime. Mostly used as a wash instead of manganese dioxide.

**Price Options** 50g: \$0.00 per bag 100g: \$0.00 per bag 500g: \$7.10 per bag  
2.5kg: \$33.10 per bag 25kg bag: \$0.00 per bag

**Chrome Oxide** (, , ) Cr2O3

A strong and refractory colourant. A very versatile stain normally producing a green colour but giving reds and yellows in some lead glazes and brown in presence of zinc oxide. In presence of tin oxide, a pink colour known as chrome tin pink is produced in glazes high in CaO when fired in oxidation.

**Price Options** 50g: \$3.00 per bag 100g: \$5.00 per bag 500g: \$22.95 per bag  
2.5kg: \$112.35 per bag 25kg bag: \$0.00 per bag

**Ilmenite** (Ilmenite Fine, , ) FeOI TiO2

Ilmenite Fine A crude ore containing titanium and iron. Finely ground it gives colours from oatmeal to subdued brown. (1-7%). Helps in the formation of crystals and speckling in glazes. Used in small quantities (up to 2%)with rutile to develop rutile break up in glazes.


**Price Options** 500g: \$4.00 per bag  
2.5kg: \$15.60 per bag 25kg bag: \$0.00 per bag

**Cobalt Carbonate** (, , ) CoCo3

Cobalt Carbonate CoCO3 TOXIC The finer grained carbonate gives a more evenly distributed colour. However, its tinting strength is only about 65% that of the oxide.

**Price Options** 50g: \$10.40 per bag 100g: \$20.20 per bag 500g: \$98.45 per bag  
2.5kg: \$489.85 per bag 5kg bag: \$0.00 per bag

**Cobalt Oxide** (, , )

Cobalt Oxide C2O3 TOXIC Used at from .05 - .5% in transparent glazes, .1  2% in opaque glazes, 1- 10% in slips and clay bodies. To reduce or prevent speckling the oxide should be well ground and sieved through 120 mesh.

**Price Options** 50g: \$13.20 per bag 100g: \$25.80 per bag 500g: \$126.30 per bag  
2.5kg: \$629.10 per bag

**Copper Carbonate** (, , ) CuCO3

Copper Carbonate CuCO3 TOXIC

Copper carbonate has two-thirds the strength of the oxide, the finer grain of the carbonate dispersing more evenly.

Copper Compounds.

Copper is a source of green in colours and glazes, also having strong fluxing properties. In lead base glazes they produce jade green, in alkaline glazes, turquoise. In reduction, copper produces a range of colours from red to the salmon colour of pure copper metal. High percentages of copper will produce black.

<b>Price Options</b>	50g: \$4.50 per bag	100g: \$7.70 per bag	500g: \$36.25 per bag
	2.5kg: \$178.85 per bag	: \$0.00 per bag	

**Copper Oxide** (Black Copper Oxide, Cupric Oxide, ) CuO

In glazes in oxidised firings, 2% produces a strong green, 5% a metallic black. Up to 10% may be used in slips or clay bodies, the colour varying from yellow brown and green.

<b>Price Options</b>	50g: \$4.00 per bag	100g: \$6.10 per bag	500g: \$28.20 per bag
	2.5kg: \$138.60 per bag	5kg bag: \$0.00 per bag	

**Manganese Carbonate** ( , , ) MnO2

Manganese Compounds

Manganese compounds are relatively weak colouring agents, giving brown colours with a hint of purple in lead glazes, purple or plum colours (strengthened and deepened by minute quantities of cobalt oxide) in high alkaline/low alumina glazes. Neutral but interesting browns in oxidation stoneware glazes, with little or no change in reduced firings.

The carbonate ensures a more evenly distributed colour in glazes while the coarser dioxide produces spots and heavier textures in slips and bodies. At stoneware temperatures manganese has the useful property of acting as a flux, fusing on to a clay body without the help of a conventional glaze, thus making impervious vessels which are to be left unglazed.

<b>Price Options</b>	100g: \$4.00 per bag	500g: \$14.20 per bag
	2.5kg: \$68.45 per bag	

**Manganese Dioxide** ( Manganese Dioxide 53 Coarse, , ) Mno2

Manganese Dioxide MnO2 Coarse Use 1 <sup>00</sup>/<sub>16</sub> 4% for pale to medium colour, 4 <sup>00</sup>/<sub>16</sub> 6% for deep brown. Amounts over 4% in combination with rutile, iron, and/or ilmenite may create a crystalline surface. Up to 8% gives brown bodies and slips; progressively larger percentages will turn into vitrifying slips or slipglazes when fired over 1120°C due to the fluxing action of the manganese.

<b>Price Options</b>	500g: \$4.00 per bag
	2.5kg: \$16.50 per bag      25kg bag: \$82.75 per bag

**Rutile** (Impure Titania (beige to buff), , ) TiO2

Rutile TiO2 The natural source of titanium, containing varying quantities of iron impurities. It gives a cream to brown colour to glazes. When used in amounts from 2-10% it modifies the colours obtained from other oxides in the glaze, but it is mostly valued for the streaked and mottled textures it produces, especially when tin, titanium or ilmenite are also present. Slow cooling initially helps to achieve the most pronounced effects. In other respects apart from colours rutile behaves much the same as titanium dioxide.

<b>Price Options</b>	100g: \$4.00 per bag	500g: \$13.95 per bag
	2.5kg: \$67.40 per bag	25kg bag: \$0.00 per bag

**Titanium Dioxide** (White Oxide, , ) TiO2

Titanium Dioxide TiO2 A glaze additive producing a sometimes mottled creamy white opacity and a semi-matte surface (5-10%), increased by slow cooling. Small amounts may intensify other colours, especially iron (yellow orange). Titanium draws colour from the clay body, stain, or slip underneath into the glaze. Decorative use can be made of this fact with glazes containing titanium in quantities of 5% and over.

<b>Price Options</b>	100g: \$4.00 per bag	500g: \$13.50 per bag
	2.5kg: \$55.50 per bag	: \$0.00 per bag

**Purple Iron Oxide** (Crocus Martis, , ) FeSO4

Purple Iron Oxide FeSo4 (also known as Crocus martis, Ferric oxide) An impure form of red iron oxide giving honey yellow in lead glazes, greenish yellow in borax glazes, often producing speckled effects (4 <sup>00</sup>/<sub>16</sub> 8%). A cheap iron salt used for colouring glazes. Soluble in water and in the glaze.

**Price Options**

2.5kg: \$24.45 per bag : \$0.00 per bag 500g: \$6.50 per bag

**Red Iron Oxide** (Haematite, Ferric Oxide, Red Ochre, )

FE2O3

Red Iron Oxide Fe<sub>2</sub>O<sub>3</sub> (also known as Haematite, Ferric Oxide) The most commonly used form of iron ( 5-15%) in oxidation slips and bodies for colours from orange to terracotta to browns, up to 10% in reduction for grey to black. In glazes 1 <sup>00</sup>/<sub>45</sub> 3% for pale colour, 3 <sup>00</sup>/<sub>45</sub> 6% for medium to dark, and 6 <sup>00</sup>/<sub>45</sub> 10% and over for dark browns and black.

**Price Options**

2.5kg: \$32.70 per bag : \$0.00 per bag 500g: \$7.00 per bag

**Iron Spangles** ( , , )

Fe3O4

Iron Scale. Blacksmiths scale. Magnetic iron oxide. Gives black speckles edged with colours derived from the other two oxides, (Red and Black)

**Price Options**

2.5kg: \$49.05 per bag : \$0.00 per bag 100g: \$3.50 per bag 500g: \$10.30 per bag

**Yellow Iron Oxide** (Yellow Ochre, , )

Fe2O3

Yellow Iron Ochre Fe<sub>2</sub>O<sub>3</sub> Ferric oxide A natural form of iron oxide containing clay which gives yellow to brown colours (3-8%). An ore containing iron oxide bleached by lime. Normally in glazes it acts as a weak form of iron oxide, but the yellow colour of the ochre may be obtained in glaze high in whiting.

**Price Options**

2.5kg: \$39.80 per bag : \$0.00 per bag 100g: \$3.50 per bag 500g: \$10.00 per bag

**Nickel Oxide** (Nickelous oxide (green or black), Nickelic oxide (black), Nickel Carbonate (greyish)) NiO

Nickel Oxide NiO TOXIC Used to produce brownish greens, browns and greys in glazes. The colours obtained from nickel tend to be rather uncertain and it is therefore generally used to modify or darken the colours obtained from other oxides. In high zinc stoneware glazes a yellow or blue can be obtained under reduction (.1 <sup>00</sup>/<sub>45</sub> 3%). It is very refractory and will raise the firing temperature.

**Price Options**

2.5kg: \$55.45 per bag : \$0.00 per bag 100g: \$4.50 per bag 500g: \$12.00 per bag

**Tin Oxide** (Stannic Oxide, , )

SnO2

Tin Oxide SnO<sub>2</sub> Stannic Oxide The most widely used and effective opacifier giving results that are pleasing and dependably, consistently even, smooth, and glossy. Gives a <sup>00</sup>/<sub>45</sub>soft<sup>00</sup>/<sub>45</sub> white colour. From 8-15% added to glaze generally gives full opacity, 4-7% for semi-opaque. Less suitable for reduced firings. Tin in combination with chromium produces chrome-tin pinks.

The following glaze for 1050 Degrees C uses tin oxide to give a soft creamy white.

Cornish stone 12

China clay 10

Lead bisilicate 70

Tin oxide 8

**Price Options**

50g: \$7.50 per bag 100g: \$14.20 per bag 500g: \$68.30 per bag  
2.5kg: \$338.75 per bag

**Vanadium Pentoxide** ( , , )

V2O5

Vanadium Pentoxide V<sub>2</sub>O<sub>5</sub> TOXIC A glaze colourant producing yellow when used in amounts up to 10%. More reliable when calcined with tin or zirconium, producing yellow or blue stains.

**Price Options**

50g: \$7.50 per bag 100g: \$14.50 per bag 500g: \$68.90 per bag  
2.5kg: \$342.00 per bag : \$0.00 per bag

**Zirconium Silicate** (Zircosil 5, Zircon, Zircopax)Zr SiO<sub>4</sub>

It is highly refractory and harder than quartz. (Melting point 2550 Deg.C)

Large crystals which are colourless can be cut as gemstones. The sparkle is only second to a diamond.

In ceramics it is used to introduce zirconia and silica into glazes and bodies. Amounts of up to 15% can be added to transparent glazes to give increasing opacity and whiteness.

Zirconia is highly refractory and can be used at all temperatures. It is often easier to disperse zirconia in the glaze by using the silicate rather than the oxide.

Zirconium silicate makes an excellent bat wash when mixed with 10% of china clay.

**Price Options**

500g: \$8.00 per bag

2.5kg: \$37.55 per bag

25kg bag: \$254.50 per bag

---

PO Box 32024 Christchurch, New Zealand  
Free Ph: 0800 667 229 - Mob: 0274 372 592 - Ph: 03 366 7229 - Fax: 03 366 6847  
Email: [cobcraft@clear.net.nz](mailto:cobcraft@clear.net.nz)  
[www.cobcraft.co.nz](http://www.cobcraft.co.nz)