GLASMA BATCH FOR GERMAN OVERLAY COLOR

- Used exclusively by Orrefors & Kosta Boda
- Clarity of lead crystal with out lead
- Compatible with Kugler, Q-Color, Wiesenthal, & CR-Color Colors

Glasma is a wholly owned subsidiary of Orrefors Kosta Boda AB. Orrefors uses Glasma batch for their production.

The finest glassware requires the finest raw materials quality from start to finish.

INSPECTIONS & QUALITY CONTROL

Glasma uses only the finest raw materials to make pelletized glass batch. The sand used as a raw material for glass making is a fine-grained sand and is subjected to at least seven inspections before it is used in production. The sand is carefully checked for purity and grain size before test melting. In addition, mineral testing and chemical analysis is carried out by the Glass Research Institute. The same stringent requirements are applied to other ingredients the other raw materials. Glasma's tolerances are held as tight as tenths of one percent. Most materials are purchased from European countries and only from authorized suppliers. An analysis certificate accompanies every delivery, the majority of which are transported by specially contracted bulk-carrying vehicles. Even a master glassblower can not create a work of art from an inferior batch or cullet.

COMPUTERIZED PRODUCTION

Raw materials are held in large silos from which they are weighed electronically to a maximum accuracy of 0.25%. The raw materials are bonded together and formed into pellets in a chemical process in a rotary drum. The pellets are then dried in a stream of hot air before being hardened in chilled air. The process is completely automated and is monitored by computer from a control center and produces a dust free batch.

INTEGRAL QUALITY CONTROL

Of course, the finished product is inspected before it is shipped. Moisture content is measured in a drying test, homogeneity is measured in an alkali test, and continuous melting tests are also performed in which glass prisms are cast. These are inspected and are stored together with sample of each batch produced. Glasma has been ISO 9000 certified since 1995. The resulting pellets are hard, homogeneous, will not separate during transport or storage, and dust free.

IMPROVED GLASS QUALITY

In today's competitive environment, it is important for a studio to make the best possible products. By supplying you with a superior raw material, we can help you improve the total quality of your product. This means fewer flaws and cords in glass, and better luster, brilliance and clarity. And most important, glassware products that are identical from one production run to the next.

SAFETY & ENVIRONMENTAL CARE

Pelletized batch also reduces the risk to both the environment and employees. Handling is easier, and people are to a much lesser extent exposed to dust or concentrated chemicals, so working conditions are better and safer.

Longer Furnace Life & Lower Energy CosMelting glass cullet is the least costly way to make glass, but it also yields the lowest quality glass. Un-pelletized batch takes longer to melt and isthe most corrosive on your furnace. The batch flies around in the furnace and corrodes the interior your furnace increasing health risks to people and reducing furnace life. Glasma pelletized batch is not dusty so your furnace life is increased and it melts quicker than un-pelletized batch which results in lower energy costs. Also, because the materials in the batch are chemically bonded together into pellets, they will not separate during transport and storage, which results in better quality glass.

COMPATIBILITY

Glasma batch is made to be used with all commonly used colored glass such as Kugler, Q-Color, Wiesenthal & CR-Color glass rods, frits and powders.

CUSTOM MIXING FOR NON-LEAD & LEAD CRYSTAL BATCH

Pelletized lead crystal batch is also available in 30%, 20 % & 5% lead. Custom mixed batch is also available.

GAS & ELECTRIC FURNACES Glasma pelletized batch is well suited for use in gas and electric furnaces.

PACKAGING & DELIVERY

Batch is packed in 52lb paper sacks, one metric ton per pallet (2,200 lbs). Batch will be sent or can picked up from our shipping locations in California. Whether you need 1 ton or 1000 tons, we can deliver what you want when you want it. Compatible with Kugler, Q-Color, Wiesenthal & CR Colors

Excellent brilliance, luster & clarity. No dust - safe for your employees & students. For electric furnaces

GLASMA #71 96 COE

	Price per Bag						
ITEM	**1+**	**42+**	**84+**	**167+**	**335+**	**671+**	**840+**
RICHMOND #71	24.67	24.18	23.69	23.22	22.76	22.30	21.41

	Price per Pound Equivalent						
POUNDS	**1+**	**2200+**	**4400+**	**8800+**	**17600+**	**35200+**	**840+**
RICHMOND #71	0.470	0.461	0.451	0.442	0.434	0.425	0.408
RICHMOND 30%PB	0.770	0.755	0.740	0.725	0.710	0.696	0.668

	Comparison Equivalent Price +20%						
POUNDS	**1+**	**2200+**	**4400+**	**8800+**	**17600+**	**35200+**	**840+**
RICHMOND #71	0.376	0.368	0.361	0.354	0.347	0.340	0.326

NEW Glasma 104 COE pelletized Moretti compatible batch. Has proberties similar to Glasma 71 – crystal clear, pelletized, Moretti compatible, etc.

		Price per Bag						
Code	**Item**	**1+**	**42+**	**84+**	**167+**	**335+**	**671+**	**840+**
GL-104-RICH	Glasma 104 COE Batch	28.35	27.78	27.22	26.68	26.14	25.62	24.60

GLASMA LEAD CRYSTAL PRICING 92 COE

	Price per Bag						
ITEM	**1+**	**42+**	**84+**	**167+**	**335+**	**671+**	**840+**
RICHMOND 30%PB	40.42	39.61	38.82	38.04	37.28	36.54	35.07

GLASMA BATCH FACTS

Can Glasma #71 be used in an electric furnace?
Absolutely! Glasma makes many different batch recipes. Each optimized for different characteristics. Our #71 can be used in both electric and gas furnaces without any problem. In fact, it is well suited for electric furnaces because it can prolong element life when compared to non-pelletized batch.

How much glass will 1000 pounds of batch yield?
Glasma #71 batch will yield approximately 845 lbs of glass for every 1000 lbs of batch melted. Yields for other batches are listed below. You get more useable glass from Glasma #71 than from any other pelletized batch.

Yield for 1,000 lbs batch

Glasma #71	845 lbs *
"Imported 96"	770 lbs**
Pelletized US batch	700 lbs*

* Yield results from test done by CR LOO & from factory specs. ** Yield results provided by seller

How does yield relate to my final cost?
Ok, think about it this way – Imported 96 costs $0.55/lb in Seattle and yields approximately 0.77 lbs of glass for every pound or batch melted. In order to get the same amount of glass as our Glasma #71, you have to use approximately 10% more batch (.77 lbs +10% = 0.845 lbs), so the $0.55 really costs you an astounding 0.605/lb (0.55 +10%=0.605)! In comparison, our Glasma #71 costs $0.461/lb. Imported 96 actually costs you 31% more than our Glasma #71! Why would you want to pay more?

What temperature does Glasma #71 melt at?
Many people in the USA who are currently using our #71 are melting it at 2300F to 2375F and getting very good results . In fact, we have a customer who melts our Glasma #71 at 10º F LOWER than domestic 96 and is getting excellent results! We have test melted Glasma #71 and domestic pelletized and non-pelletized batches. All were melted in the same furnace, in identical crucibles under identical conditions and all yielded good glass. (There were of course differences in terms of clarity, dust, etc).

A word about melting temperature (the semi-long version, i.e. don't read this if you don't really want to know.
Melting temperature depends on the type of furnace you use, the location of your thermocouple, the type of thermocouple, whether you are measuring the apparent temperature or actual temperature, the age of your furnace, etc. If you were to put 3 thermocouples in one furnace, you would likely get three different temperature readings. What is important here is not the actual absolute temperature, but that you melt at the same relative temperature. The indicated temperature in a gas furnace can be higher than the indicated temperature in an electric furnace. In a gas furnace, temperature is generally read from above the glass. This results is a higher temperature reading than the actual glass temperature. In an electric furnace, the measured temperature is closer to the actual temperature of the glass, so glass at a certain viscosity will indicate a lower temp in an electric furnace than in a gas furnace. I.e the melting temperature in an electric furnace looks to be lower than the melting temp in a gas furnace.

You should not rely solely on the manufacturer's recommended melting temperature as an absolute. People melt other pelletized batches at lower and at higher temperatures than what is recommended by manufacturer. Each furnace is different and you should adjust your melting temperature accordingly. Also, as the furnace ages, you may also need to adjust melting temperatures to compensate for all of the variables. Higher melting temperatures can give you great glass, but you can compensate and get the same, high quality glass by melting at a lower temperature for a longer time.

If this weren't enough, there are errors in pyrometers, errors in thermocouples, thermocouple shifts, etc that can all effect temperature readings.

What does Glasma #71 cost?
Our Glasma #71 is the best and lowest cost pelletized batch PERIOD. Regardless of the quantity you purchase, we can offer you the absolute lowest price for the best batch.

Why would you want to pay more?

Do you have to prepay?
Absolutely not. If you have a Net 30 account established with us, you may use it to purchase anything form us, batch included. We won't nickel and dime you and say, "Sorry, no net 30, batch must be prepaid." Of course you may also pay by cash, check or credit card.

Is there any dust?
No. Glasma is thoroughly pelletized. There are no incomplete pellets or any dust at all.

How clear is Glasma #71?
Our Glasma #71 is the clearest batch available for glassblowers. Period. It is never Pink or any other color.

Is it compatible with my colors?
Yes, but of course, it all depends. If anyone shows you a sheet that states that a particular color is compatible with a particular base glass – BEWARE! No one can reliably guarantee compatibility in all cases! If they do, run as fast as you can. What is compatible depends not only on the color and batch you use, but also on what form of color you are using (rods, frits, powders), how you melt your batch, how you charge your furnace, who charges your furnace, position of color, thickness of layers, and many, many more variables. Kugler & Q-Colors are actually made to fit GLASMA #71 Batch. We ALWAYS recommend testing for YOUR particular application.

Is the batch consistent from one run to the next?
Yes. Glasma batch production is completely computerized. There is no chance of someone forgetting to add some key chemical component to the batch. Also, each run of batch is test melted and examined for clarity, consistency and compatibility. Glasma is also ISO 9000 certified, so you can be assured of quality.

Will my melts be better?
Absolutely. Non-pelletized batch can separate into its chemical components during transport from shaking and vibrating. This separation can result in poor quality melts, compatibility problems, etc. Since the chemical components in Glasma batch are fully pelletized and chemically bonded together, the batch will not separate, resulting in even, consistent, compatible melts.

Will my glass be better if I use Glasma batch?
Absolutely. Clears and colors will shine with more brilliance, clarity and luster. Hold a piece made with Glasma next to a piece made with other batch and you'll immediately see the difference.

Will the Glasma bags on the bottom of a pallet become rock hard so that I have to smash the bags on the floor?
No. Bags of Glasma #71, whether from the top of a pallet or the bottom, will always be perfectly pelletized and completely loose. The batch will not harden into cement-like bags. Store the batch in a cool, dry place and you can keep the batch for years and it will still be as loose as the day you received it!

How do I melt the batch?
You can melt the batch in pretty much the same way as you melt other batch. Many people have told us that they use exactly the same melting cycle that they use with commonly used domestic batch. Others have modified their melt cycle. Since each furnace and each person melts batch differently, there is no one way that is best. Glasma batch may be a little denser than other batches, so you can experiment with smaller charges more often, but in general, you can melt in the same way you are used to. Also, when charging, don't leave a pyramid in your furnace, flatten out the charge.

Is Glasma #71 corrosive?
All batches are to a certain extent corrosive. It is the chemicals in the batch that can contribute to the corrosiveness of the batch. It is also these same chemicals that help melt the sand. Sand itself melts at a very high temperature and it is some of the chemicals that are added that act as fluxes that enable the sand to dissolve at a lower temperature. Some chemicals also contribute to the clarity of the glass, chemical resistance to washing, etc. The batch has been engineered to optimize all aspects of glass production and end use. It is made to be as easy on your furnace as possible while at the same time not sacrificing the quality of your finished work.

Can I use a propane gas hand torch on the glass?
No, we do not recommend that you use propane gas hand torches on the glass. Glasma #71 has an antimony content so using a propane torch on the glass might mean a reduction of the antimony to the metallic state. Antimony is a costly chemical that is added to the glass to increase its clarity. We recommend using a propane & oxygen torch if you need to reheat your work.

When will I get my next pay raise?
Well, we can't tell when you'll get your next raise, but what we can say is that when you use our Glasma batch #71, you'll get that raise sooner rather than later. If you've been working with glass for any length of time, you know that there are no hard and fast rules. The one exception may be that for every thing someone says or does, someone else can completely and accurately contradict it. What works today may not work tomorrow, what works for you may not work for your friend.

We know that changing to a new batch is a big commitment. Move into the future with state-of-the-art, pelletized, truly clear glass. Don't use the same-ol' glass everyone else is using.

If you're willing to make Glasma #71 work for you, we know you'll like the results. Your customers will.

SPRUCE PINE BATCH

Spruce Pine Batch is an excellent all-around batch that is compatible with most Kugler and Q-Colors. The batch is pelletized which makes shipping easier because the constituents will not separate. In addition,when charging your furnace, much less dust is generated. It has excellent clarity and long working time. It also has the added advantage of melting at lower temperatures which can save fuel costs and extend the life of your furnace! Available in 50 lb bags.

		Price Per Pound					
CODE	**ITEM**	**1+**	**100+**	**500+**	**1000+**	**2000+**	**4000+**
SP-87-ERB	Spruce Pine 87 w/Erbium	0.45	0.42	0.39	0.38	0.37	0.37
SP-83-ERB	Spruce Pine 83 w/Erbium	0.45	0.42	0.39	0.38	0.37	0.37

		Price Per Bag Equivalent					
CODE	**ITEM**	**1+**	**2+**	**10+**	**20+**	**40+**	**80+**
SP-87-ERB	Spruce Pine 87 w/Erbium	22.50	21.50	19.25	18.90	18.65	18.50
SP-83-ERB	Spruce Pine 83 w/Erbium	22.50	21.50	19.25	18.90	18.65	18.50

CASTING GLASS

		PRICE PER POUND			
CODE	**ITEM**	**1+**	**40+**	**80+**	**160+**
B-1401-30	Colorless Clear Dble Roll	6.67	5.53	4.53	4.13
B-1401-60F	Colorless Clear, 6mm, Fus	6.67	5.53	4.53	4.13
B-1401-66F40	Casting Clear, Patties	6.67	5.53	4.53	4.13

Bullseye Patties look like broken pancakes.

Bullseye Billet 3/4" x 8" x 15, approximately 8.5 lbs each.

CLEAR CULLET FOR BLOWING & CASTING

		Price Per Pound			
CODE	**ITEM**	**1+**	**100+**	**500+**	**2000+**
U-CUL-CLRPOR	Uroboros Clear Cullet 90 COE FOB Portland				0.40
U-CUL-CLRRIC	Uroboros Clear Cullet 90 COE FOB Richmond	1.90	1.50	1.20	0.50
S-100SCU	Clear Cullet, Regular*	1.70	1.40	1.10	0.25
S-100SFSCU	Clear Cullet, 96 COE Tested*	1.90	1.50	1.20	0.30

* The difference is that the Tested glass has extra components to prevent devitrification when fusing.

NEW UROBOROS CASTING BILLETS

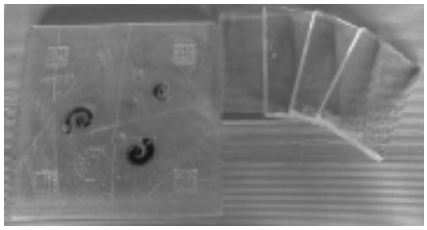
The NEW Uroboros casting billets are 90 COE and tested compatible with Uroboros Fusion FX and Bullseye glass. Made with Uroboros new Water Clear formula for a color free appearance. Large even, clean and consistent billets mean less bubbles when casting. Great for kiln casting, tiles, tables, and other art objects. Size: 9" x 6" x 3/4". Weight: Approx. 3.8 lbs per billet, 38 lbs per box. Packaging: 10 billets per box. COE: 90 Measured. Annealing Temp: 977 F. Specific Gravity: 2.5-2.54 gm/cm3, 156-158lbs/cu ft. Strain Point: 917F. **Code: U-B-01**

PRICE PER BILLET

1+	10+	25+	50+	100+	250+	500+
18.99	18.11	17.16	15.24	13.33	12.50	11.99

PRICE PER POUND EQUIVALENT

1+	50+	100+	250+	500+	1000+	2000+
4.99	4.74	4.49	3.99	3.49	3.29	3.16



SANDBLAST & ETCHING RESIST

Sandblasting & etching resist is available in paper, clear & white vinyl backing. Use the 8 mil for etching or sandblasting up to 1/16" deep over paper or 1/8" deep for clear or with vinyl. The 12 mil white is suitable for sandblasting up to 1/4" deep. Available in 6", 12", 18", or 24" rolls. Paper rolls contain 120 yds, clear and white vinyl contain 18 yds. 20 mil, 18 yd rolls for 3/4" deep sandblasting is available by special order. All resist may be combined for quantity discounts.

		Price per Roll		
CODE	**ITEM**	**1+**	**3+**	**6+**
P-RES08P-06	Paper 8 Mil 6"x120yd1/4"Dp	32.00	28.80	25.60
P-RES08P-12	Paper 8 Mil 12"x120yd1/4"Dp	64.00	57.60	51.20
P-RES08P-18	Paper 8 Mil 18"x120yd1/4"Dp	98.00	88.20	78.40
P-RES08P-24	Paper 8 Mil 24"x120yd1/4"Dp	128.00	115.20	102.40
P-RES08C-06	Clear 8 Mil 6"x18yd 1/8"Dp	26.00	23.40	20.80
P-RES08C-12	Clear 8 Mil 12"x18yd 1/8"Dp	52.00	46.80	41.60
P-RES08C-18	Clear 8 Mil 18"x18yd 1/8"Dp	78.00	70.20	62.40
P-RES08C-24	Clear 8 Mil 24"x18yd 1/8"Dp	104.00	93.60	83.20
P-RES08W-06	White 8 Mil 6"x18yd 1/8"Dp	26.00	23.40	20.80
P-RES08W-12	White 8 Mil 12"x18yd 1/8"Dp	52.00	46.80	41.60
P-RES08W-18	White 8 Mil 18"x18yd 1/8"Dp	78.00	70.20	62.40
P-RES08W-24	White 8 Mil 24"x18yd 1/8"Dp	104.00	93.60	83.20
P-RES12W-06	White 12Mil 6"x18yd 1/4"Dp	32.00	28.80	25.60
P-RES12W-12	White 12Mil 12"x18yd 1/4"Dp	64.00	57.60	51.20
P-RES12W-18	White 12Mil 18"x18yd 1/4"Dp	96.00	86.40	76.80
P-RES12W-24	White 12Mil 24"x18yd 1/4"Dp	128.00	115.20	102.40

All resist may be combined for quantity discounts.