

Appendix 1

Albert L. Johnston Glass Receipts

This batch book was owned by Emmet E. Olson, the chemist for the A. H. Heisey & Co. of Newark, OH for many years from the 1930s until its closure in 1957. However, this list of glass "receipts" is handwritten in Spencerian style script, so it must date from the mid to late 1800s or thereabouts. There are no indications as to who Albert Johnston was or for which glass company he worked. The formulas are listed in the order in which they were written in the book. Words or letters unable to be deciphered are indicated by _____; words in brackets are the best interpretation. Spelling, punctuation, and capitalization have usually been maintained as originally written.

White

Sand	7 lbs.
Ash	2½ lbs.
Soda	½ lb.
Aluminum	4 oz.
Bone	14 oz.

Blue

Sand	7 lbs.
Soda	½ lb.
Ash	2½ lbs.
½ oz. Ultramarine Stain	
1/8 oz. Torque	do.

Purple

Sand	7 lbs.
Soda	½ lb.
Ash	2½ lbs.
Manganese	2 oz.

Ultramarine Blue

Sand	7 lbs.
Ash	2½ lbs.
Soda	½ lb.
¾ oz. Torqua Stain	
1/8 oz. Ultramarine Stain	

Torquay Blue

Sand	7 lbs.
Ash	2½ lbs.
Soda	½ lb.
Green Chrome	1/8 oz.
Torqua Stain	¼ oz.

Bohemian Flint

Sand	7 lbs.
Ash	2½ lbs.
Soda	½ lb.
Ultramarine Stain	¼ oz.
Manganese	2 oz.

Germany Flint

Sand 10 lbs.
 Litharge 5 lbs.
 Ash 4 lbs.
 Soda 1 lb.
 Magnesia 1 oz.

Mock Ruby

Sand 10 lbs.
 Lead 5 lbs.
 Ash 6 lbs.
 Soda ¼ lb.
 Crocus Martis ½ lb.
 Chromate of Iron ¼ lb.
 Pink Stain ¼ lb.

Gold Ruby

Sand 10 lbs.
 Lead 7 lbs.
 Ash 3 lbs.
 Soda 2 lbs.
 Gold Oxide 1 dwt.
 Tin do. 1 dwt.

Coventry Receipts for Flint

	cwt.	gross	lbs.
Sand	3	0	0
Lead	2	0	0
Ashes	1	0	0
Nitre	0	2	0
Manganese	4 oz.		
Arsenic	4 oz. but seldom used		

Fr. Blue

	cwt.	gross.	lbs.
Sand	1	0	10
Lead	1	2	6
Ashes	0	2	0
Zaffer	1	0	6
Manganese	8 oz.		
Antimony	2 oz.		

Flint

250 lbs. Sand washed & dried
 150 lbs. Lead
 50 lbs. Potash refined
 20 lbs. Salt Petre
 6 oz. Manganese
 4 oz. Arsenic if needed

Blue

210 lbs. Sand
 28 lbs. Lead
 56 lbs. Potash
 28 lbs. Salt Petre refined
 4 oz. Zaffer
 4 oz. Manganese
 4 oz. Antimony

Blue
Lead 110 lbs.
Sand 156 lbs.
Potash 50 lbs.
Zaffer 6 lbs.
Manganese 8 oz.
Antimony 2 oz.

Flint
Sand 120 lbs.
R. Lead 50 lbs.
Pearl Ash 40 lbs.
Salt Petre 20 lbs.
Manganese 5 oz.

Coventry Receipt for Flint

Sand 1300 lbs.
Lead 200 lbs.
Pot Ash 100 lbs.
Salt Petre 20 lbs.
Manganese 4 oz.
Antimony 12 oz.
Arsenic but seldom used 4 oz.

___y Blue

Lead 50 lbs.
Sand 100 lbs.
Salt Petre 5 lbs.
Arsenic 1 lb.
Zaffer 1 oz.
Calcined Copper ½ oz.

Richits Flint

Sand 400 lbs.
Lead 300 lbs.
Potash 120 lbs.
Manganese 8 oz.
Arsenic 4½ oz.
As much cullet as you can get in

B A Dayton Flint

Sand well washed 200 lbs.
Lead 120 lbs.
Pearl Ash 60 lbs.
Salt Petre 10 lbs.
Borax 1 lb.
Arsenic 8 oz.
Manganese 4 oz.

Flint -ivy [?]

Lead 150 lbs.
Sand 225 lbs.
Pearl Ash 84 lbs.
Salt Petre 10 lbs.
Manganese 5 oz.
Arsenic 4 oz.

Flint

Sand 228 lbs.
 Lead 75 lbs.
 Pearl Ash 40 lbs.
 Salt Petre 9 lbs.
 Manganese 3½ oz.
 Arsenic 1½ oz.

Black

3 oz. Calcined Iron
 12 oz. Manganese
 1 lb. Sand
 1 lb. Lead

White Enamel

Sand 5 lbs.
 Lead 4 lbs.
 Salt Petre 2½ lbs.
 1½ oz. Antimony for 100 lbs.
 10 lbs. Arsenic for 100 lbs.

Best Green

Sand 250 lbs.
 Lead 200 lbs.
 Copper shavings 2 lbs.
 Brimstone 1 lb.
 Iron Rust 1 lb.

Put the copper in the dish. Pound the brimstone and put in all over the copper in the dish on the fire and burn it well; then pound it in a mortar and sift it through a fine sieve and mix it with the batch.

Patent Yellow

Litharge 100 lbs.
 Shi--- of Salt 10 lbs.
 Salmosuch [?] 1 lb.

[unnamed]

Sand 2200 lbs.
 Lead 1000 lbs.
 Pearl Ash 450 lbs.
 Salt Petre 75 lbs.
 Manganese 1½ lbs.
 Antimony 4 oz.
 Borax 4 lbs.
 Arsenic if needed 1 lb.
 Fill up with cullet

Galice Receipts

Sand 550 lbs.
 Lead 200 lbs.
 Potash 112 lbs.
 Salt Petre 19 lbs.
 Manganese 5 oz.
 Antimony 1 oz.
 Borax 1 lb.

Arsenic if needed

[unnamed]

Lead 480 lbs.
Potash 240 lbs.
Sand 720 lbs.
Salt Petre 40 lbs.
Borax 1 lb.
Manganese 6 oz.
Arsenic 2 oz.

As much cullet as this pot will hold

[unnamed]

Sand 1300 lbs.
Red Lead 835 lbs.
Pot Ash 410 lbs.
Salt Petre 80 lbs.
Borax 2 lbs.
Manganese 5 oz.
Arsenic 2 oz.

As much cullet as needed

[unnamed]

Sand 1060 lbs.
Lead 746 lbs.
Pot Ash 315 lbs.
Salt Petre 60 lbs.
Borax 1½ lbs.
Arsenic 8 oz.
Manganese 10 oz.

[unnamed]

Sand 1590 lbs.
Lead 1119 lbs.
Pot Ash 473 lbs.
Borax 3 lbs.
Arsenic 12 oz.
Manganese 15 oz.
Salt Petre 90 lbs.

[unnamed]

Sand 1271
Lead 864
Ash 400
Salt Petre 100
Borax 6
Arsenic 2
Manganese

[unnamed]

Sand 468
Lead 272
Ash 126
Borax 2
Arsenic 1
Salt 44

Crown Glass

Sand 112 lbs. to 5 or 6 oz. [?]
 If bad 52 Pearl Ash or P. 51.28 2 oz.
 Common Salt 29
 If damp 15 Lime 14
 Glass 112

Culender Glass

Sand 112
 Pot Ash 50
 Common Salt 27
 Glass 1000

Donken McDougal

Sand 112
 Pot ash 28
 Common Salt 27
 Lime 14
 Glass 112

If this salt comes off too quick, add more salt, if it stays too long, less salt. In yellow metal ½ lb. salt petre will bring it right.

Flint Ash

(1) Sand 1200
 (2) Ash 650
 (4) Lead 4.00
 () Nitrate of Soda refined 130

[next line crossed off]
 or 120 to 130 lbs. saltpeter

to be spread separate in layers well turned and sifted.

(4) One oz. Manganese to every 100 lbs. sand always in the batch. To that Batch from 4½ to 8 Bbls. Cullet.

Coloring from 2½ to 3½ oz. Manganese.

(3) From 3 lbs. to 4½ lbs. B__e [bone?] for whitening

(4) " 2½ to 3 phosphate of soda for Brightening

(1) from 2 lbs. of Arsenic if no bone used 2½ to 3 lbs. whitening. Put in 3 oz. if furnace run hot. Put 3½ oz. Manganese first _____ J. Md. [?]

Soda

Sand 1200
 BiCarbonate Soda 550
 Nitrate of soda 130
 Lead 320 to 350

Directions same as in the ash J.M.J. [?]

White

Sand (1) 300
 Ashes (2) 135
 Lead (4) 100
 Nitrate of soda (3) 45
 Arsenic (5) 16
 Bone (6) 16
 Manganese on top 3 oz.

About 300 lbs white cullet

A very good batch

1200 lbs. Sand
 100 lbs. Lead
 400 lbs. Ashes
 120 lbs. Soda Nitre refined
 1 lb. Arsenic
 1½ oz. Manganese

the batch will want to be brought once a month [?]

Batch for Ruby Glass

1200 lbs. Sand
 100 lbs. Lead
 400 lbs. Ashes
 120 lbs. Salt petre
 1 lb. Arsenic
 ¼ to 1½ lbs. manganese

Ruby Batch

8½ lbs. flint Batch
 9½ oz. Lead Extra
 143 grams of oxide of tin
 143 grams of Black Antimony
 \$5.67 in gold dissolved in nitric & Sulphuric acid

\$17 in gold to 25 lbs. flint batch should be looked at in 12 or 14 hours, or as soon as plain it may take 24 hours if not colored don't appear from pot it may afterward _____ hot lear _____
 Sulphrate of antimony & dissolve in muriatic acid Boiled pour of [off?] solution into cold water and will come white pesipital [precipitate?] wash in hot water

For Preparing Gold for Ruby Batch

take 6 oz. Nitric acid
 “ 1 oz. “ “
 “ 2 oz. Alcohol

Mix them together the alcohol to be put in last and in small quantities at the time until all in---when this is prepared then put into this mixture in small quantity granulated tin and continue this until the solution is saturated the solution will be taken up by the tin & become dry

To Dissolve the gold

Take 2 oz Salamoniac & dissolve in 5 oz pure nitric acid and when the salamoniac all dissolved then take one oz grain gold and put into this solution in small quantities until the gold is all dissolved then evaporate this solution to a powder over a strong fire but commencing at first with a slow heat and increasing the heat until into a powder then put this powder into a jar that will contain 1 quart water---fill with pure water and then put in the powder and stir until all is dissolved

When the tin is prepared as first stated, then to this preparation put 4 gallons of pure water in a large vessell and mix the tin well so that all the preparation of tin will be perfectly dissolved and when this is so prepared then take gold as prepared and put into the solution of tin and stir well until all the gold & tin is well mixed then let this stand 6 hours then pour off the water as far as you can, and not loose [sic] any of the matter that has settled when you have poured off all the water you can then add the same quantity of water as first or as much as you can get into the vessell and let this stand 12 or 18 hours and then pour off all the water you can & if the matter is settled well then it will be fit to filter through filtering paper which well filtered, then take and mix this with 4 lb sand, 2 lbs Lead, 2 oz white oxide of antimony, 1½ oz manganese and dry over a slow fire in a Evaporating dish. When this is dry mix well 28 lbs sand—34 lbs Lead—16 lbs saltpeter—then it will be ready to melt and work into Ruby Balls.

This is for one oz of gold

When learing white or opal use nidon [?] coal in preference to coke in lear

