



# DAACS Cataloging Manual: Glass Vessels

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*DAACS Cataloging Manuals document how artifacts, contexts, features, objects and images are cataloged into the DAACS database. They provide information not only about artifact identification but also about how each database field is used and how data should be entered into that field.*

*The DAACS database was developed by Jillian Galle and Fraser Neiman, in collaboration with members of the [DAACS Steering Committee](#). Jillian Galle led the development of cataloging protocols, with significant help from DAACS Staff, Elizabeth Bollwerk, Leslie Cooper, Lynsey Bates, Jesse Sawyer, Beatrix Arendt, and Sarah Platt. In addition to DAACS staff and steering committee members, Monticello current and former Archaeology Department staff, Fraser Neiman, Jennifer Aultman, Sara Bon-Harper, Derek Wheeler, Elizabeth Sawyer, Donald Gaylord, Karen Smith, and Nick Bon-Harper also contributed to the development of cataloging protocols. Jennifer Aultman and Kate Grillo produced the initial versions of these DAACS manuals in 2003. They have been substantially revised by Cooper, Galle, Bollwerk, and Bates in the intervening years.*

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## INTRODUCTION

The **Glass Vessel** module in DAACS is designed to record attributes from all types of glass vessels, including tablewares, food and liquid containers, and bottles. It is also used to record attributes from glass objects that were once part of a vessel, including milk glass jar lid liners and wine bottle seals even though they, themselves, are not vessels. Non-vessel glass, such as window glass, lamp glass, glass furniture insets, glass door knobs, and mirror glass, should be cataloged as General Artifacts. Toys made of glass (e.g. glass marbles) and components of glass jewelry (glass lens, glass paste jewels) should be cataloged in the General Artifacts module. However, glass beads are cataloged in the Bead module and glass buttons in the Button module.

This manual is divided into three sections. The first section provides details on the fields recorded for the DAACS Gold, Silver and Bronze interfaces and the cataloging protocols. The second section explains what information is recorded in each field. The third section provides instructions on how to catalog specific artifact types.

## THE DAACS DATABASE

The DAACS database was designed by Galle and Neiman in 2001, with the direct input from the DAACS Steering Committee and collaborating institutions. The large relational database is programmed in PostgreSQL and comprises over 200 related tables. This structure instantiates the protocols and standards outlined in the DAACS manuals. The database is linked to a Ruby-on-Rails web-based interface, which allows DAACS Research Consortium members to access the database through a web browser with a login from anywhere with a working internet connection.

The first section provides details on the fields recorded for each module -- Gold, Silver, and Bronze.

Table 1: Comparison of Glass Attributes recorded for Bronze, Silver, and Gold Cataloging Levels.

<i><b>Bronze</b></i>	<i><b>Silver</b></i>	<i><b>Gold</b></i>
Artifact Count	Artifact Count	Artifact Count
Glass Color	Glass Color	Glass Color
Category	Category	Category
Form	Form	Form
Manufacturing Technique	Manufacturing Technique	Manufacturing Technique
Decoration?	Decoration?	Decoration?
Weight	Weight	Weight
Notes	Notes	Notes
Image Links	Image Links	Image Links
	Material	Material
	Completeness	Completeness
	Mold Type	Mold Type
	Mended?	Mended?
	Mended Sherd Weight	Mended Sherd Weight
	Max Sherd Measurement	Max Sherd Measurement
	Decorative Techniques	Decorative Techniques
	Applied Color	Applied Color
	Glass Stylistic Element	Glass Stylistic Element

	Mark	Mark
	Location of Mark	Location of Mark
	Object	Object
	Mends	Mends
		Sherd Thickness
		Rim Length
		Rim Diameter
		Mended Rim Diameter
		Base Length
		Base Diameter
		Mended Base Diameter
		Pontil Mark
		Total Container Height
		Element
		Shape
		Manufacturing Technique
		Stemware Body Shape
		Stemware Foot Shape
		Stem Shape
		Stem Length
		Burned



		Patination
		Solarized
		PMM
		Conservation

Table 2: Location of Attributes on the Glass Module Interface

<i>Field Location in DAACS Glass Module</i>	<i>Bronze</i>	<i>Silver</i>	<i>Gold</i>
<b>Main Tab</b>	Artifact Count	Artifact Count	Artifact Count
	Glass Color	Glass Color	Glass Color
		Material	Material
	Category	Category	Category
	Form	Form	Form
		Completeness	Completeness
	Manufacturing Technique	Manufacturing Technique	Manufacturing Technique
		Mold Type	Mold Type
		Mended?	Mended?
	Decoration?	Decoration?	Decoration?
	Notes	Notes	Notes
<b>Measurements</b>			Sherd Thickness
		Mended Sherd Weight	Mended Sherd Weight

		Max Sherd Measurement	Max Sherd Measurement
	Weight	Weight	Weight
			Rim Length
			Rim Diameter
			Mended Rim Diameter
			Base Length
			Base Diameter
			Mended Base Diameter
<b><i>Bottle Info</i></b>			Pontil Mark
			Total Container Height
			Element
			Shape
			Manufacturing Technique
<b><i>Stemware Info</i></b>			Stemware Body Shape
			Stemware Foot Shape
			Stem Shape
			Stem Length

<b><i>Decoration/Marks</i></b>		Decorative Techniques	Decorative Techniques
		Applied Color	Applied Color
		Glass Stylistic Element	Glass Stylistic Element
		Mark	Mark
		Location of Mark	Location of Mark
<b><i>Condition</i></b>			Burned
			Patination
			Solarized
			PMM
			Conservation
	Image	Image	Image
	Object	Object	Object
	Mends	Mends	Mends

# 1. Cataloging Protocols for Bronze Level: Glass Vessels

The main benefit of cataloging vessel glass at the Bronze Level is the ability to batch larger quantities of sherds by a smaller number of diagnostic fields. The result is that you and your staff can catalog more artifacts cataloged at a faster pace. However, think carefully about the analytical tradeoffs. If you catalog in Bronze, you will not record key pieces of information, such as Mold Type (which might be useful for dating your site) or Decoration Type.

Note that Machine-made and non-machine made glass have different cataloging protocols.

## 1.1 Cataloging Protocols for Non-Machine Made Vessel Glass

Batch all sherds that share the following attributes:

- Glass Color
- Category
- Form
- Completeness
- Manufacturing Technique
- Decoration

Note that:

- Decorated sherds should be batched separately from undecorated sherds.
- Mended sherds can be batched with unmended sherds.
- Artifact Count should record the total number of sherds in the batch.
- Sherd weight should be recorded as the total weight of the batch.

Recommended Cataloging Process for Non-Machine Made Vessel Glass at the Bronze Level:

1. Empty a context onto a table.
2. Sort sherds into Non-Machine versus Machine Made categories. Set Machine-Made sherds aside.
3. Sort Non-Machine Made into two groups: decorated and undecorated.
4. Within each group, sort by Glass Color, Category, Form, and Manufacturing Technique.
5. You are ready to catalog your batches.

## 1.2 Cataloging Protocols for Machine Made Vessel Glass

Batch all machine-made sherds by Glass Color regardless of Category and Form in the batching.

Record fields as follows for machine made glass:

Artifact Count: Number of sherds in batch

Glass Color: As appropriate

Vessel Category: "Not Recorded"

Form: "Not Recorded"

Manu Tech: "Machine Made"

Decoration? "N/R"

Sherd Weight: Enter weight of the batch in grams

Batch decorated and undecorated sherds together.

Recommended Cataloging Process for Machine Made Vessel Glass at the Bronze Level:

1. Empty a context onto a table.
2. Sort sherds into Machine versus Machine Made categories. Set Non Machine-Made sherds aside.
3. Sort Machine Made into groups by color.
4. You are ready to catalog your batches.

## 2. Silver Cataloging Protocols for Glass Vessels

### 2.1 Fragments to Catalog Individually

Do not batch glass vessel sherds with the following attributes:

#### 2.1.1 Decoration

All decorated glass (including fragments with lettering) sherds are cataloged individually to DAACS gold/complete standards, but without thickness measurements.

Marks should be recorded for non-machine made vessels, with decoration as 'Lettering' and DecorationYN as 'Yes.'

Do not batch mouth blown or free blown sherds with marks, such as wine bottle seals and vessels with engraved lettering.

#### 2.1.2 Post-Manufacturing Modification

All sherds with post manufacturing modification are cataloged individually to DAACS complete standards, but no thickness measurements are recorded.

### 2.2 Mended Sherds

#### 2.2.1 Rules for Cataloging Mended or Mendable

Sherds that are physically glued or could be physically mended should be cataloged at the sherd level, which may result in batches with counts of one.

If two mended sherds have all of the same attributes (including max. sherd size), then they can be recorded in one batched record, with the appropriate count.

Do not batch mended with nonmended sherds.

#### 2.2.2 Examples

Example 1: Three bottle fragments mend together, two are 20 mm and one is 30 mm, all other attributes are the same. Two records would be created for this scenario: one with a count of 2 and max size 20 mm, and another with a count of 1 and max size 30 mm.

Mended Yes/No is recorded as "Yes, Physically But Not Mended."

Example 2: Two wine bottle base sherds, size 30 mm, mend together. One record is created, Mended Yes/No is recorded as "Yes, Physically Glued."

### 2.3 Cataloging Protocols for Non-Machine Made Vessel Glass

Batch all sherds that share the following attributes:

Glass Color

Material (e.g., Lead, Non-lead)

Category

Form

Completeness

Manufacturing Technique

Mold Type

Maximum Sherd Size (less than 20 mm, 21-30 mm, 31-40 mm, etc. - 10 mm modified bins for DAACS Silver)

Artifact Count should record the total number of sherds in the batch. Sherd weight should be recorded as the total weight of the batch.

## **2.4 Cataloging Protocols for Machine Made Vessel Glass**

Batch all machine-made sherds by Glass Color regardless of Maximum Sherd Size, Category, Form, and Completeness in the batching.

Record fields as follows for machine made glass:

Artifact Count: Number of sherds in batch

Glass Color: As appropriate

Material: "Non-lead"

Vessel Category: "Not Recorded"

Form: "Not Recorded"

Completeness: "Not Recorded"

Manu Tech: "Machine Made"

Mold Type: "Contact Mold"

Mended? "Not Recorded"\*

Decoration? "N/R"\*

Sherd Thickness: Do not record (leave blank)

Max. Sherd Size: Do not record (leave blank)

Sherd Weight: Enter weight of the batch in grams

\*Do not record Decoration or Marks, batched decorated and marked sherds together.

### 3. Gold Cataloging Protocols for Glass Vessels

There are complex batching rules for glass sherds in the Gold interface. Please pay close attention to the batching rules that we have listed here.

#### 1. Glass Sherds of Max. Sherd Size 15 mm or Smaller

a. If Form is “Unidentifiable,” and Completeness is “Body” or “Unidentifiable”:

- Batch by **Color, Material, Manufacturing Technique**, and **Mold Type** (if applicable).
- Sherds must share the same attributes in order to be batched.
- If some of the sherds are burned or patinated, enter “Not Recorded” in these fields (Condition tab).
- Be sure to record that the maximum sherd measurement is 15mm, and the total weight of the sherds.

b. If sherds are mended, decorated or diagnostic in form or completeness (base, rim , or finish):

- Do not batch.

c. If sherds are machine-made, see below.

#### 2. Automatic Machine Made Glass (Includes objects manufactured using semi and fully automatic machines)

If Manufacturing Technique is “Machine-made” or “Machine made, Likely”:

- Batch all machine-made sherds by **Color and Form**.
- Disregard Max. Sherd Size, Form, and Completeness in the batching.

**Count:** Number of sherds in batch

**Material:** “Non-lead”

**Glass Color:** As appropriate

**Vessel Category:** “Not Recorded”

**Form:** As appropriate\*

**Completeness:** “Not Recorded”

**Manu Tech:** “Machine Made”

**Mold Type:** “Contact Mold”

**Mended:** “No” (default)

**Decoration:** “No” (default)

**Sherd Thickness:** Do not record

**Max. Sherd Size:** Do not record



**Sherd Weight:** Enter weight of the batch in grams

\*The decision was made on August 7, 2019 to batch machine made and likely machine made glass by form and color.

**3. All Non-Machine-Made Bottle Glass and non-lead Container glass** (any sherds with the Manufacturing Technique of Mouth Blown, Mold Blow, Free Blown):

- Batch glass bottle sherds by:\*

<b>Material</b>	<b>Manufacturing Technique</b>
<b>Color</b>	<b>Mold Type</b>
<b>Category</b>	<b>Burning</b> (recorded on Condition tab)
<b>Form</b>	<b>Maximum Sherd Size</b> (Measurements tab)
<b>Completeness</b>	

\*Sherds must share all of the same attribute values in order to be batched. See below for diagnostic sherds that should not be batched.

For example, five unburned wine bottle body sherds with a max. sherd size of 35 mm would have a record like the following:

<b>Count:</b>	5
<b>Material:</b>	"Non-lead"
<b>Glass Color:</b>	"Green/Olive Green"
<b>Vessel Category:</b>	"Hollow"
<b>Form:</b>	"Bottle, wine style"
<b>Completeness:</b>	"Body"
<b>Manu Tech:</b>	"Mouth Blown"
<b>Mold Type:</b>	"Missing Information"
<b>Mended:</b>	"No" (default)
<b>Decoration:</b>	"No" (default)
<b>Sherd Thickness:</b>	Do not record
<b>Sherd Weight:</b>	Enter weight of the batch in grams
<b>Max. Sherd Size:</b>	35mm [numerical value only]
<b>Burned:</b>	"No" (default)

a. Do **not** batch bottle sherds with the following attributes (catalog individually):

- Circular base sherds with a measurable length\*
- Diagnostic manufacturing marks such as pontil marks, string rims and finishes
  - Text marks
  - Decoration

\*If you have non-diagnostic bottle **base** sherds with no measurable length (i.e. fragments of the push-up), then these sherds can be batched according to the bottle glass batching rules.

4. **Melted Glass** (any sherds that have been completely warped by exposure to heat and for which there are no diagnostic characteristics that allow form, completeness, and category to be determined):

**Batch melted sherds by:\***

**Color**

**Material**

**Burning (recorded on Condition tab)**

**Maximum Sherd Size (Measurements tab)**

\*Sherds must share all of the same attribute values in order to be batched.

For example, five melted sherds with a max. sherd size of 35 mm would have a record like the following:

<b>Count:</b>	5
<b>Material:</b>	"Non-lead"
<b>Glass Color:</b>	"Aqua/Light Green"
<b>Vessel Category:</b>	"Unidentifiable"
<b>Form:</b>	"Unidentifiable"
<b>Completeness:</b>	"Unidentifiable"

5. **All other non-bottle and/or non-machine-made glass sherds greater than 15 mm in size should be cataloged individually.**

Please note that new batching rules for all bottle glass were implemented on October 28, 2010. Prior to implementation, all mouth-blown and mold-blown glass bottle sherds that had a maximum sherd measurement that was greater than 15 mm were individually recorded, measured and weighed. All other existing glass batching rules remain unchanged.

## 4. Field Descriptions

### Main Tab

#### 4.1 Artifact Count

This field documents the number of artifacts in that record. For example, a count of one means there is one sherd being described in that record, or row, of data. A count of 13 means there are 13 sherds described by the other fields in the record. This is a numeric field.

#### 4.2 Material

This field records the material type of the artifact being cataloged. This field has a controlled vocabulary and you can only select one term.

One of the first cataloging decisions that we make when cataloging in vessel glass is distinguishing between lead and non-lead glass..

We identify lead glass by placing it under short-wave ultraviolet light. If it fluoresces ice blue, we catalog it as leaded(Jones et al. 1985:12). If the glass does not glow or “fluoresce” under the lamp, it is non-lead glass.

Developed in 1676 by George Ravenscroft, lead glass is colorless, heavy, and lustrous, other important attributes to consider in addition to using a UV light(Jones et al. 1985:11). Lead glass was primarily used for tablewares, but was also occasionally used for medicine vials, condiment bottles, decanters, and lamp chimneys (Jones et al. 1985:12).

In most cases, leaded glass is colorless. When entering data into the DAACS database, use a blacklight (UV) to test whether your sherds are leaded. In order to catalog a fragment as “lead” glass, it must fluoresce ice blue or ice purple under short-wave UV light. Ideally this test is done inside of a light box or other environment that minimizes light pollution.

#### 4.3 Glass Color

This field records the primary color of the glass in the record. If the glass is decorated, you will record the decoration color on the Decoration tab. This field has a controlled vocabulary and you can only select one term.

As we have discussed elsewhere, color is a difficult attribute to record objectively among different catalogers. To help control of individual color perception, we use a range of Pantone

Color chips, located in the **Basic Colors** section of the DAACS Color Book, to assist with color recording. When recording color, choose the Pantone chip that most closely matches the artifact as a whole. Brief descriptions of the colors found in the Basic Colors section are found below.

- “Amber”**: Medium golden-brown
- “Amethyst”**: Very light purple
- “Blue”**: A “mid-range” or “medium” shade of blue
- “Brown”**: This color is used to describe modern, machine-made bottle glass. Do not confuse with amber glass, which is redder and lighter in color.
- “Colorless”**: Clear
- “Dark Blue”**: Generally, a deep, cobalt blue
- “Grey”**: From a light gray tint to a dark, nearly black tint.
- “Green/Olive Green”**: Encompasses medium green and dark green, usually applies to wine and case bottle glass
- “Light Blue”**: The lightest of the three shades of blue on the Basic Color Sheet
- “Light Green/Aqua”**: Light greenish-blue/Seafoam or sage green
- “Bright Green”**: Bright green glass, similar in color to Sprite™ bottle glass. This color is most often used for in machine-made vessels, it has also been observed in some mold-blown vessels.
- “Orange”**: Brighter in color than amber (e.g., Carnival glass)
- “Pink”**: Pale red
- “Purple”**: Note that this color is darker than Amethyst
- “Red”**: Encompasses medium to dark reds
- “Unidentifiable”**: Too burned, patinated, or otherwise altered for glass color to be determined
- “White”**: Opaque, often milky, white, sometimes called “milk glass”
- “Yellow”**: Any range of light-to-medium yellows

**Pro Tip!** Holding a darker-colored sherd to the light can help to identify its color.

Since the color chips in the Basic Color section are used to record color for other artifact types, there are five colors that appear on the Basic Color Sheet that should not be used to describe glass vessel color. They are:

- “Black”**
- “Bronze”**
- “Copper”**
- “Gold”**
- “Silver/Tin”**

However, these colors are available for use in the Glass decoration table (see **Section 5.2**).

#### 4.4 Vessel Form

If the vessel form is identifiable from sherd-level attributes, record the form in this field. This field has a controlled vocabulary and you can only select one term.

There are 32 different forms available in the Glass Vessel Form field in DAACS. We do not describe them all here; however, examples of many of these forms are available in the *Parks Canada Glass Glossary* (Jones et al. 1985). A few, however, deserve special mention:

Form	Description
<b>“Bottle, unidentifiable”</b>	Used for bottles whose original shape or type of contents cannot be determined, either due to the fragmentary nature of the sherd or to the lack of a diagnostic manufacturer’s mark.
<b>“Bottle, Wine style”</b>	See section on Bottle, Wine style below (Section 7.1)
<b>“Container, unidentifiable”</b>	For sherds that were clearly part of a hollow container, but are too fragmentary to identify as a bottle, jar, or other more specific <i>container</i> type. This form should <i>not</i> be used if the sherd may have been part of a stemware or tableware vessel (e.g., plate, tumbler).
<b>“Not recorded”</b>	“Not recorded” is used only when glass sherds from different vessel forms are batched together. This is the case for Machine-made glass vessels, which are only batched by color. See Section 1.1 for batching rules.
<b>“Pharmaceutical Bottle/Vial”</b>	Bottles for liquids and medicines. Pharmaceutical bottles come in a range of colors and with a variety of closure types, although most were closed with some sort of stopper. If you can distinguish for certain whether a vessel is a pharmaceutical bottle or a vial, please record “Pharmaceutical Bottle” or “Pharmaceutical Vial” in the notes.
<b>“Tableware, unidentifiable”</b>	Small fragments of leaded glass with apparent decorative elements are usually cataloged with a form of “Tableware, unidentified” in DAACS. This category also includes fragments of stemware and other unidentifiable table forms.
<b>“Unidentifiable”</b>	Sherds that are so fragmentary, burned or nondiagnostic that they cannot be distinguished as bottle, container, tableware or stemware should be cataloged as “Unidentifiable”.

## 4.5 Completeness

This field records which parts of the vessel are evident in the sherd being cataloged. This field has a controlled vocabulary and you can only select one term.

As with the Ceramic table, the terms in the Completeness field allow you to record all portions of the vessel that is visible on the sherd. A value for Completeness should be chosen that represents, as nearly as possible, all elements present on the sherd. Term choices for Completeness are:

<b>"Base"</b>	<b>"Foot, Stem, Body, Rim"</b>
<b>"Base, Body"</b>	<b>"Handle"</b>
<b>"Base, Body, Rim"</b>	<b>"Lid Liner"*</b>
<b>"Base, Body, Shoulder, Neck"</b>	<b>"Neck"</b>
<b>"Body"</b>	<b>"Not Recorded"</b>
<b>"Body, handle"</b>	<b>"Rim"</b>
<b>"Body, Rim"</b>	<b>"Shoulder"</b>
<b>"Body, Shoulder"</b>	<b>"Base, Body, Shoulder"</b>
<b>"Complete Object"</b>	<b>"Seal"**</b>
<b>"Finish"</b>	<b>"Stem"</b>
<b>"Neck, Finish"</b>	<b>"Stem, Body"</b>
<b>"Shoulder, Neck, Finish"</b>	<b>"Stem, Foot"</b>
<b>"Body, Shoulder, Neck, Finish"</b>	<b>"Stopper"</b>
<b>"Foot"</b>	<b>"Unidentifiable"</b>
<b>"Foot, Stem, Body"</b>	

Notes:

#### \*LID LINERS:

Occasionally, one finds white "milk glass" jar lid liners used to line Mason jars. These jar lid liners should be cataloged in the glass vessel table because they are part of a vessel even though they, themselves, are not vessels. They should be cataloged as follows:

<b>Glass Color:</b>	<b>"White"</b>
<b>Material:</b>	<b>"Non-lead"</b>
<b>Vessel Category:</b>	<b>"Hollow"</b>
<b>Form:</b>	<b>"Jar"</b>
<b>Completeness:</b>	<b>"Lid liner"</b>
<b>Manu Tech:</b>	<b>"Machine made"</b>
<b>Mold Type:</b>	<b>"Contact mold"</b>

#### \*\*BOTTLE SEALS:

Seals adhered to bottles are often found as separate objects. For these artifacts, Completeness should be "Seal," with other information recorded as appropriate. If any decoration or marks are present on the seal, record these in the Decoration/Marks tab (see Section 5). As an example,

<b>Glass Color:</b>	<b>"Green/Olive green"</b>
<b>Material:</b>	<b>"Non-lead"</b>
<b>Vessel Category:</b>	<b>"Hollow"</b>
<b>Form:</b>	<b>"Bottle, wine style"</b>

<b>Completeness:</b>	“Seal”
<b>Manu Tech:</b>	“Mouth blown”
<b>Mold Type:</b>	“Missing information”

## 4.6 Manufacturing Techniques

The manufacturing technique field indicates whether the glass was free blown, machine made, mold blown, mouth blown, or of unidentifiable manufacturing technique. These manufacturing techniques are defined clearly in the Parks Canada Glass Glossary (Jones et al. 1985:17-24). This field has a controlled vocabulary, and you can only select one term.

**Free Blown** – Glass vessels that have been formed entirely (body, shoulder, and neck) without the use of molds. The base and finish are usually hand formed as well (Jones et al. 1985:22). Characteristics of free blown glass include: 1) asymmetry in body, shoulder, neck, or base, 2) no mold seams or molded decoration (see description below for attributes of mold blown glass), 3) exterior of glass tends to be smooth with the exception of patinated areas.

**Mouth Blown** – Jones et al. (1985:17) define “mouth-blown” as a general term that designates fragments shaped with **air pressure applied through a blowpipe by the mouth**. The term is used to describe “the method of manufacture of a fragment that has no mold seams, no distinctive mold-blown texture, no distinctive free-blown traits, and no machine-made indicators.” For DAACS, “mouth blown” applies primarily to “Bottle, wine style” glass that is neither clearly machine-made nor clearly totally free-blown. “Mouth Blown” vessels are possibly partly mold blown and partly free blown.

The decision was made to use “Mouth Blown” primarily for wine bottle glass because it was commonly manufactured using a number of techniques to form different parts of a single bottle. For example, many “Bottle, wine style” bottles are partially mold blown and then finished with free blowing. It is often difficult, with small sherds of wine bottle glass, to determine whether the vessel was completely free blown or was partially mold blown, especially if only a small fragment of the bottle is present. Given the prevalence of wine bottle glass on archaeological sites, it seems useful to distinguish between cases where manufacturing technique for wine bottle glass is ambiguous (i.e. free blown, mold blown, or a combination) and those cases in which manufacturing technique is truly unidentified.

**Mold Blown** – This term is used to describe glass fragments whose shape or decoration is created by forcing hot glass into the outer extremities of the inside of a mold. The hot glass can be forced into the mold using **air pressure either from a mouth or machine**, or by pressure exerted by a plunger (Jones et al. 1985: 22-23). Characteristics of fragments from mold-manufactured objects include: 1) orange-peel texture on exterior surfaces, 2) pock marks on exterior surfaces (from the use of older, worn out molds), 3) mold seams, 4) rectangular or flat body fragments with or without sharp corners, or 5) lettering. You

do not need the mold seam to designate that a vessel is “Mold Blown.” However, the secondary mold evidence must be strong and readily apparent.

Jones et al. (1985: 23-35) lists and explains the diagnostic attributes for different mold types (contact, pattern, optical, and press molds). These are described in the Mold Type section.

**Machine Made** – Machine-made containers **are shaped by air pressure supplied by a machine**. This category encompasses both semi-automatic machines (where the machine is manually supplied with gobs of molten glass by humans) and fully automatic machines (where no manual labor is needed). The diagnostic characteristics of machine-made glass include: 1) the presence of a seam that travels all the way up to the neck and circles the lip of the bottle, 2) presence of ghost seams on the neck and upper part of the shoulder and body, 3) applied color labels, 4) presence of valve marks or Owens suction scar or stippling/knurling on the base, 5) the glass is a color that was introduced after machine-made manufacture (i.e. Sprite bottle green and Beer bottle brown). Characteristics that should NOT be used to identify fragments as machine made: 1) glossy finish or greater reflectivity of surfaces, 2) presence or absence of bubbles in the glass.

**Machine Made, Likely** – Use this term to record fragments of glass that are lacking diagnostic characteristics of machine manufacture but exhibit other attributes that are suggestive of machine-made glass including the uniformity of the vessel thickness, lack of free or mold-blown characteristics, and that exhibit modern glass colors (i.e. sprite green). It is also relevant to consider if the fragments are found contextually with lots of other glass that is diagnostically modern.

Note: This term, “Machine Made, Likely” was added to the database on June 18, 2019 to differentiate fragments that have diagnostic attributes related to machine production from those that are clearly not free blown or mouth blown, exhibit mold blown characteristics and look like modern glass. If glass fragments look modern it is better to use “Machine Made, Likely” rather than “Mold Blown” to capture that the sherds are likely 20<sup>th</sup> century. We also prefer that catalogers use this term instead of “Unidentifiable” because it helps users of the data differentiate glass where the manufacturing technique is truly “Unidentifiable” from glass is likely modern.

If you have a fragment of non-leaded glass that does not exhibit characteristics that suggest it is mold blown, machine made or likely machine made, and is not dark green wine bottle glass the manufacturing technique should simply be recorded as “Unidentifiable.”

## 4.7 Mold Types

This field has a controlled vocabulary, and you can only select one term.



Here are the protocols for relationships between the Manufacturing Technique and Mold Type fields:

Manufacturing Technique	Mold Type
"Mouth Blown"	"Missing Information"
"Free Blown"	"Not Applicable"
"Machine Made"	"Contact Mold"
"Unidentifiable"	"Not Applicable"
"Mold Blown"	<i>Bottles:</i> "Contact Mold" <i>Other vessels:</i> Identify Mold Type from the following list: "Contact Mold," "Optic Mold," "Pattern Mold," or "Press Mold" (see Jones et al. 1985:31-41 for descriptions), or "Unidentified."

*Note:* You do not need the mold seam to designate that a vessel is "Mold Blown." Other signs of mold blown vessels include an orange-peel textured exterior surface and smooth interior surface. In order to use "Mold Blown," however, the secondary mold evidence must be strong and readily apparent.

#### 4.8 Mended?

This field records whether a sherd is mended to another sherd. This field has a controlled vocabulary and you can only select one term.

The default for this field is "No." If the mended sherd is actually glued to another sherd, enter "Yes, Physically Mended." If sherds mend together, but are not physically glued enter "Yes, Mends But Not Physically" in this field.

Sherds that are mended with other sherds must be cataloged individually. Measure individual sherd thickness (if possible), size, and estimate average sherd weight. Remember to fill out Mended Sherd Weight (Measurements Tab; see 2.4 below), the Artifact IDs of the sherds that mend directly to the sherd being cataloged and the Mended Form on the Mends Tab (see section 9 below).

#### 4.9 Decoration?

This field records in a simple Yes/No fashion if the sherd is decorated. This field has a controlled vocabulary and you can only select one term.

If a glass sherd is decorated, enter "Yes" in this field. Decoration is recorded on all glass vessels that are non-machine-made. Be sure to fill out information about the decoration under the Decoration/Marks tab, and additional observations in the Notes field.

## 5. MEASUREMENTS

## 5.1 Sherd Thickness

This field records sherd thickness. This is a numeric field. Measurement is taken in millimeters with a set of digital calipers. It should be recorded to the tenth-place (i.e. 12.3mm, not 12.31 mm). This is a numeric field.

The original surface must be present on both sides of the sherd to measure sherd thickness. If not, this field is left blank. When a rim is present, thickness measurements are always and only taken at the rim. Again, the original surface must remain on both sides of the rim to take this measurement.

Only record sherd thickness for:

- All leaded sherds regardless of form or completeness with a Maximum Sherd Size larger than 15mm.
- Sherds cataloged as "Tableware, unid." or a vessel considered a tableware form ('Bowl', 'Decanter', 'Drinking Glass, unidentifiable', 'Jelly Glass', 'Salver', 'Stemware', 'Tableware, unidentifiable', 'Tumbler') with a Maximum Sherd Size larger than 15mm. Do not take sherd thicknesses for 'Stoppers'.

Do not record sherd thickness for:

- Bottle forms (wine-style, case bottles, bottle, unid, etc.)
- Sherds cataloged as "Container, unid" forms
- Non-leaded sherds with unidentifiable forms

## 5.2 Maximum Sherd Measurement

This field records the maximum sherd measurement, which we define as the smallest diameter circle in which a sherd fits without extending over the circle's edges. This is a numeric field.

Maximum sherd size is measured using a DAACS cataloging mat. Each mat has a series of circles used to measure sherds in 5mm increments. The size of the smallest circle into which the sherd fits completely is the sherd size. If the sherd is too large to fit within any of the circles on the mat, a tape measure is used and the measurement is rounded up to the next number divisible by 5 or 10 depending on whether you are cataloging using Gold or Silver/Bronze protocols.

The maximum sherd measurement should always be taken, even if the sherd has been burned into an unidentifiable form or shape.

## 5.3 Sherd Weight

This field records the weight of the artifact or artifacts being cataloged. This is a numeric field.

Always record weight for any artifact record, in grams, to the nearest tenth. If the sherd is physically mended to another sherd, see “Mended Sherd Weight” below.

### 5.4 Mended Sherd Weight

This field records the weight of multiple artifacts that are mended together but are cataloged in different records. This is a numeric field.

Record total sherd weight for the mended sherds. Calculate an estimate of the individual sherd weight by dividing the mended sherd weight by the number of sherds that compose the mended object.

### 5.5 Rim Length

This field records the length of the rim. This is a numeric field.

Rim Length is measured for all tableware rim sherds (e.g., drinking vessels, stemware, and other tablewares). This measurement should be taken in millimeters, to the nearest hundredth if possible. If a rim has significant curvature, its rim length is measured with a bendable tape measure.

### 5.6 Rim Diameter

This field records the diameter of a rim. This is a numeric field.

Rim Diameter is taken for sherds with rim lengths of greater than 20mm. Any rim diameter measurement under 20 mm is inaccurate. The radius template on the cataloging mat is used to take the measurement –the curvature of the rim is matched to the arc with the best fit. When dealing with thicker sherds, the general rule is to measure along the exterior of the rim (rather than trying to determine the interior diameter of the vessel). Diameter measurements on the mats are in millimeters.

In order to measure the rim diameter for a flat, scalloped-edge vessel using the radius template, the fragment must have three scalloped points.

### 5.7 Mended Rim Diameter

This field records the length of a rim that is comprised of multiple mended sherds. This is a numeric field. The protocols described above for measuring an unmended rim apply here.

### 5.8 Base Length

This field records the length of a base sherd. This is a numeric field.

Base Length is measured for all circular tableware and glass bases that have a measurable base length. Stemware bases are recorded elsewhere. The base length is obtained by using a soft tape to measure around the circumference of the base (see

image below). In the case of wine bottle glass, this measurement is the outermost protrusion of the base.



Base Length measurement of wine bottle base

## 5.9 Base Diameter

This field records the diameter of a base sherd. This is a numeric field.

Base diameter is measured for spherical tableware and bottle bases (excludes stemware). Base diameter is measured with calipers for complete bases. Diameters are taken using the exterior edge of the base (see image).

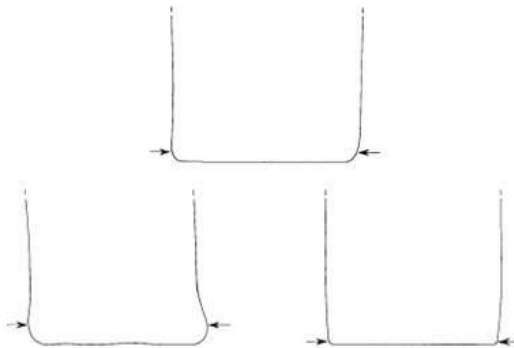


Figure 83. Base diameter.

Jones et al. 1985:121.

Base diameters for tablewares and bottles are estimated on sherds that have Base Length measurements greater than 20 mm and that can be confidently matched to a diameter arc on the radius template. The curvature of the base is matched to the curves on the radius template to the nearest “confidently estimated” arc that matches that curvature. By this we mean that the diameter must clearly match a single diameter arc and not have several possible matches.

If you cannot confidently match the sherd to an arc, no Base Diameter measurement should be recorded. In many cases it may be easier to obtain this measurement using the mylar rim chart, in which case the curvature is estimated by placing the mylar over

the inverted sherd in order to match it. Diameter measurements on the radius template are in millimeters.

## 6. BOTTLE INFORMATION

Within the vessel glass module, we have embedded a relational table to record in detail specific attributes related to the manufacturing techniques of bottles (e.g., lips, string rims, bases) and vessel morphology for bottles **with free blown or hand tooled elements**. Do not use this tab if you have mouth blown or mold blown bottles.

**Only use this tab to record clearly diagnostic information about the sherd.** Identifiable, diagnostic elements include shapes of tooled features such as string rims or lips on wine style bottles. Diagnostic features include the relationship between parts of a bottle finish such as the presence of both a lip and a string rim. For example, when cataloging a molded pharmaceutical vial with a hand-tooled, flanged lip, the finish shape and lip shape are recorded in the Bottle Information table; the molded body is captured in 'Manufacturing Technique' on the Main tab. Another example is a mouth blown wine bottle with domed base but unidentifiable body shape; Bottle Shape of the base is recorded as "Domed" but Bottle Shape of the body is not entered since it is unidentifiable. **Do not record any bottle information for solely mold blown or mouth blown sherds without identifiable free blown or handtooled elements.** Sherds with completeness of only "Body", "Base, body", or "Base" **with unidentifiable shape** should not be entered.

The vast majority of the bottles included in the **Glass Bottle** table are "Bottle, wine style," with a number of "Bottle, case" and "Pharmaceutical bottle/vial" included as well. The table was designed primarily for these types of bottles, but other bottles such as pharmaceutical vials **that have handtooled or free blown elements** should be included in the table as well. It may be necessary to add terms to the database for such bottles, which must be done by the database administrator.

### 6.1 Pontil Mark

A pontil scar is a mark left by the long iron rod (pontil) used to hold the glass object during the finishing process (Jones 1971:68). It is also the result of creating the pushup or kick on the base of the bottle, if present (Jones 1971:63). The following include the possible pontil mark types (after Jones 1971; Jones et al. 1985). Note that pontil scars are recorded for non-bottle glass as well (e.g. tableware). This field has a controlled vocabulary and you can only select one term.

**"Empontilled, improved and ground":** If the mark has been ground down to a relatively smooth surface, obscuring any evidence of different pontil types.

**"Empontilled, type unid":** The particular type cannot be determined, but the pontil

mark has not been ground.

**“Not Applicable”:** This is the default. Also used for machine made bottles.

Specific Pontil Types (if the mark was not “improved and ground”):

**“Bare Iron”:** Distinct circular mark, tends to distort the shape of the pushup. May have iron residue.

**“Blowpipe”:** Pipe was used as a pontil. Ring-shaped mark with fairly clean (no glass fragments) in the center of the ringed mark

**“Glass-Tipped”:** Usually small (< 30 mm), often excess glass left or bits of glass.

**“Sand Glass-Tipped”:** “Thin line of glass chips encircling the pushup and enclosing a pebbled surface” (Jones et al. 1985:69).

**“Quatrefoil”:** Created from rod with end split into quadrants; pushup top may look square and profile may be distorted.

**“Mamelon”:** Small circular protrusion at the tip of the pushup (Jones et al. 1985:87).

## 6.2 Total Container Height

Measure the total height of the bottle, if possible, in mm. An accurate way to measure this height can be found in Jones et al. 1985 (p. 116). This is a numeric field.

In Sections 3.3 through 3.6 below, each field in the Bottle Information Table is described. Since not all values for the fields in the Glass Bottle Table apply to all bottle elements, the following tables present summaries of which shapes, manufacturing techniques, and treatments apply to the respective elements.

## 6.3 Glass Bottle Element

**Glass Bottle Element** records specific information about manufacturing techniques of bottle elements (e.g., lips, string rims, bases) and vessel morphology for bottles **with free blown or handtooled elements. Only record information on this tab if what is being recorded is identifiable or diagnostic.** Identifiable elements include shapes of tooled features such as string rims or lips on wine style bottles. Diagnostic features include the relationship between parts of a bottle finish such as the presence of both a lip and a string rim. For example, a molded pharmaceutical vial with a hand-tooled, flanged lip, the finish shape and lip shape are recorded in the bottle information table; the molded body is captured in ‘Manufacturing Technique’ on the Main tab. Another example is a mouth blown wine bottle with domed base but unidentifiable body shape;

Bottle Shape of the base is recorded as “Domed”, but Bottle Shape of the body is not entered since it is unidentifiable. **Do not record any bottle information for solely mold blown or mouth blown sherds *without identifiable* free blown or handtooled elements.** Sherds with completeness of only “Body”, “Base, body”, or “Base” **with unidentifiable shape** should not be entered.

The vast majority of the bottles included in the **Glass Bottle** table are “Bottle, wine style,” with a number of “Bottle, case” and “Pharmaceutical bottle/vial” included as well. The table was designed primarily for these types of bottles, but other bottles such as pharmaceutical vials **that have handtooled or free blown elements** should be included in the table as well. It may be necessary to add terms to the database for such bottles, which must be done by the database administrator.

The Bottle Element field provides a place to record which part of the bottle the ensuing information about shape, manufacturing technique, and treatment refers. Not all possible bottle elements are offered as choices in the “Glass Bottle Element” field. Only those elements for which other specific information is recorded are listed in the “Element” field. The choices in this field are:

**“Base”:** Bottom of the bottle; extends up to the heel, which is the curved edge where the base turns up to form the body.

**“Body Horizontal”:** horizontal cross-section of the body; located somewhere between base and shoulders (i.e. not the cross-section of the neck).

**“Finish”:** The top of the bottleneck, contains elements such as the lip and the string rim that allow for the closure of the bottle (Jones et al.1985:78).

**“Lip”:** The area, on the exterior and top of the bottle, around the opening of the bore.

**“Neck”:** The area from the bottom of the finish to the shoulder.

**“String Rim”:** not present on all bottles; it is “the ledge or ring that protrudes from the neck just under the lip” (Jones et al. 1985:81).

Other elements that are present, but for which no additional information is added to the bottle table, are not listed in the Glass Bottle Table.

## 6.4 Glass Bottle Shape

The shapes of certain elements are diagnostic to particular time periods or locales of manufacture. For that reason, a shape system was created for DAACS. The system is a simplified version of that presented in Jones et al. (1985). Catalogers in DAACS must be

careful to consult the following list whenever they are cataloging glass bottle shapes because each shape applies only to certain elements.

For Base, Body and Neck sherds: Only enter information into the bottle tab if the shape of the sherd is identifiable. Do not enter a record for a Base, Body, or Neck sherd that then has the shape as “Unidentifiable”.

For Finish, Lip and String Rim: Select “Unidentifiable” if you cannot determine the shape (see below for specific options).

## BASE

Refers to the basal profile.

**“Conical”**: straight sided pushup, comes to a relatively sharp vertex

**“Convex”**: rounded, protruding base—found on bottles used for shipping that were packed in crates with a packing material

**“Domed”**: any sort of curved, arched basal profile

**“Flat”**: no pushup; base extends straight across from resting point to resting point

**“Four point”**: Found on case bottles. “The four corners of the bottle are the only points on which the bottle stands. The heel arches slightly between these four points” (Jones et al. 1985:86).

**“Rocker”**: irregularly shaped base that causes the bottle to wobble

## BODY HORIZONTAL

Shape of the horizontal cross-section of the body.

**“Circular”**: most common; the body is very nearly round in cross-section

**“Ovoid”**: common with free-blown bodies; body is elongated in one horizontal dimension (i.e. is not quite circular in cross-section)

**“Rectangular”**: has flat sides and corners at nearly ninety degrees; case bottles.

## FINISH

Indicates how many components comprise the finish.

**“1-part”**: comprised simply of a lip

**“2-part”**: comprised of a lip and a string rim

**“3-part”**: comprised of a lip, a string rim, and any kind of third element

**“Champagne”**: technically a special case of a two-part finish; a finishing tool is used to create “a wide, flat string rim a few millimeters below a flat-topped or a downward-sloping lip” (Jones et al. 1985:79).

**“Unidentifiable”**: select this option if you cannot determine whether a finish was a 1-, 2-, or 3-part.

## LIP

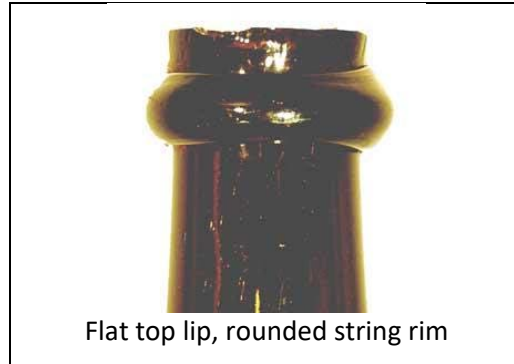


Shape refers to the profile of the lip.

**“Downsloped”**: when the lip slopes outward and downward (Jones et al. 1985:81). Usually this was formed using a finishing tool. Descriptions for “downsloped” and “sloped top” sound very similar, but note the difference between the two types depicted (see photo under “sloped top,” below). With downsloped lips, the entire lip slopes. With sloped-top lips, only the top of the lip slopes down and out—in essence the top of the lip is beveled—and the rest is straight-sided.



**“Flat top”**: the lip has a horizontal top (Jones et al. 1985:80). This applies to lips that were cracked off/burst off and not manipulated further, as well as lips that were made flat by manipulating the top to make it smooth.



**“Flanged”**: the lip is flared using a finishing tool, creating a 90 degree angle between the lip and neck. Use of finishing tool creates a relatively thin lip.



**“Irregular”**: when the lip is either tooled or untooled and of non-uniform shape. If the shape of the lip is questionable because it is inconsistent around the circumference of the bottle, it should be cataloged as irregular.

**“Rounded”**: the side of the lip is rounded in profile (Jones et al. 1985:81)

**“Sloped top”**: “the lip is flat but slopes downward and outward”—essentially, the top of the lip is beveled and the rest is straight (Jones et al. 1985:80). See image:



Sloped Top lip (1002-830B1-NOS--00059)

\*Note how the top of the lip is beveled, and the sides are straight.

**“Tapered Out/Down”**: lip is flared and wide at the opening and it tapers down to a narrow neck.



Tapered Out/Down lip (1013-062-1/3BC-NOS-000017)

**“V-shaped”**: lip slants down and out from the top, and up and out from the

bottom to give a v-shaped profile. Most often created with a finishing tool. The top and bottom of the v should be almost equal in the amount of downslope and upslope, respectively, therefore resembling a true sideways “V.”

**“Unidentifiable”**: select this option if you cannot determine lip shape

## NECK

Shape refers to the profile of the neck.

**“Bulged”**: neck bulges outward at the center of the neck or down toward the shoulder (Jones et al. 1985:82).

**“Cylindrical”**: “neck maintains a constant diameter from its base to the finish” (Jones et al. 1985:82).

**“Non-Existent”**: “no connecting constriction between the finish and shoulder or between the finish and body” (Jones et al. 1985:82).

**“Tapered”**: neck decreased in diameter from the base of the neck to the finish (Jones et al. 1985:82).

**“Tapered Out/Down”**: neck expands in diameter from the base of the neck to the finish (Jones et al. 1985:82).

**“Rudimentary”**: neck is so short as to be almost non-existent. A small constriction between the shoulder and the finish. Found most frequently on snuff bottle and on some case bottles (Jones et al. 1985:82).

## STRING RIM

Not present on all bottles. It is “the ledge or ring that protrudes from the neck just under the lip” (Jones et al. 1985:81).

**“Downsloped”**: string rim has been modified to slope down and out (Jones et al. 1985:81).

**“Flat side”**: the side of the string rim is vertical.



Flat sided string rim, with downsloped lip  
(Monticello ER 831E2)

**“Irregular”**: when the string rim is either tooled or untooled and of non-uniform

shape. If the shape of the string rim is questionable because it is inconsistent around the circumference of the bottle, it should be cataloged as irregular.

**“Rounded”**: a string rim that has been tooled to give it a rounded profile (Jones et al. 1985:82).

**“Upsloped”**: when the lower surface of the string rim slopes upward and outward. Has a flat or rounded top. This is usually done with a finishing tool.

**“V-shaped”**: a string rim that has a v-shaped profile (Jones et al. 1985:81). The top and bottom of the v should be almost equal in the amount of downslope and upslope, respectively, therefore resembling a true sideways “v.” Usually this shape is formed using a finishing tool.

**“Unidentifiable”**: select this option if you cannot determine string rim shape

## 6.5 Glass Bottle Manufacturing Technique

Just like Shape, Manufacturing Technique is recorded only for certain elements. A very limited number of manufacturing techniques is available in the **Glass Bottle** table, and each applies only to particular elements:

### BASE

**“Dip Mold”**: a mold in which the body—and sometimes the base-- of a bottle is blown. The bottle is then removed from the mold and the shoulder and neck free blown. Therefore, on dip-molded bottles the mold evidence terminates at the shoulder (Jones et al. 1985:26).

**“Free blown”**: Entirely free-formed vessel elements. Generally asymmetrical, with no evidence of molding (no mold seams, no “orange peel” on the exterior), no sharp corners or lines in the element shape (Jones et al. 1985:22).

**“Molded, unid mold type”**: a base with clear evidence of molding (such as mold seams), but for which the mold type cannot be determined.

**“Mouth blown”**: for bases that may be partially molded and partially free blown. See Section 1.6, above, for a full explanation.

**“Turn/paste”**: a late nineteenth century technique in which glass was blown into a mold while the parison is being turned in the mold. Often characterized by horizontal striations on the bottle, and by a shiny surface appearance (unlike the “orange peel” effect common to most molded bottles) (Jones et al. 1985:30-31).

### BODY HORIZONTAL

**“Dip Mold”**: a mold in which the body—and sometimes the base—of a bottle is blown. The bottle is then removed from the mold and the shoulder and neck free blown. Therefore, on dip-molded bottles the mold evidence terminates at the shoulder (Jones et al. 1985:26).

**“Free blown”**: An entirely free-formed vessel. Generally asymmetrical, with no evidence of molding (no mold seams, no “orange peel” on the exterior), no sharp corners or lines in the element shape (Jones et al. 1985:22).

**“Molded, unid mold type”**: a body with clear evidence of molding (such as mold seams), but for which the mold type cannot be determined

**“Mouth blown”**: for bodies that may be partially molded and partially free blown. See Section 13.1.5, above, for a full explanation.

**“Turn/paste”**: a late nineteenth century technique in which glass was blown into a mold while the parison is being turned in the mold. Often characterized by horizontal striations on the bottle, and by a shiny surface appearance (unlike the “orange peel” effect common to most molded bottles) (Jones et al. 1985:30-31).

## FINISH

**“Not recorded”**: information about manufacturing technique for components of the finish is recorded separately under “Lip” and “String Rim.”

## LIP

**“Crack off/burst off”**: characterized by a jagged top where the blowpipe was detached from the bottle (Jones et al. 1985:40). Technically, cracked-off lips are found on mouth blown bottles and burst-off lips on mold blown bottles, but the two are difficult to distinguish and are thus collapsed in DAACS. Generally, crack off/burst off bottles have flat or irregular tops. Crack off/burst off bottles with fire polished or ground-down lips are still cataloged under this manufacturing technique.

**“Tooled”**: characterized by a regular and distinguishable shape that often has a matte finish. Tooled includes all lips that have been shaped by a hand-held tool, whether simply manipulated by a tool to form the lip or formed by patented finishing tools common in the 19<sup>th</sup> century. Note that this includes lips that may have initially been formed by added glass but are distinguished from those by additional manipulation with some sort of tool.

## NECK

**“Free blown”**

**“Molded, unid mold type”**

**“Mouth blown”**

## STRING RIM

**“Added glass/Untooled”**: characterized by a visible string of glass that has been added to the bottle to create a protruding string rim. Added glass/untooled string rims are irregular shape in both plan and profile. There should be no evidence for tool use.

**“Tooled”**: characterized by a regular and distinguishable shape (though not as regular as molding) that often has a matte finish. Tooled includes all string rims

that have been shaped by a hand-held tool. This includes bottles with added glass string rims that have been manipulated with simple tools as well as string rims that have been shaped from patented finishing tools common in the 19<sup>th</sup> century.

## 7. STEMWARE INFORMATION

The three main parts of a glass stemware vessel are the bowl, the stem, and the foot. In DAACS, the bowl is not called a bowl, but is instead a “body.” This designation keeps glass terminology more consistent with the “Completeness” options for other vessel types, such as ceramics.

### 7.1 Stemware Body Shape

Stemware body shape refers to the overall shape of the body (or bowl) of the vessel. Jones et al. (1985:139) have developed a body shape classification system, which is used for DAACS with some additions. See Appendix 2 for a glossary of body shapes.

### 7.2 Stemware Foot Shape

Stemware foot shapes for DAACS are taken directly from Jones et al. (1985:140) with additions when needed. See Appendix 2.

### 7.3 Stem Shape

Stem shapes are also borrowed directly from Jones et al. (1985:139) with additions when needed. See Appendix 2.

### 7.4 Stem Length

Stem length should only be measured (in millimeters) if the entire stem is present.

## 8. DECORATION/MARKS

Decoration is recorded on all glass vessels that are non-machine-made.

### 8.1 Decoration Technique

Choose one of the following techniques:

**“Acid Etched”:** The vessel is covered in a waxy compound, and the design is drawn on the object by cutting away the compound in those areas to be etched. Acid is applied and dissolves or frosts the glass. Generally late nineteenth century and later (McKearin and McKearin 1948:33).

**“Air Bubbles”:** Bubbles of air intentionally trapped within the glass. Common on stemwares (Jones et al. 1985:50).

**“Air Twist”:** Air bubbles are trapped in the glass and drawn out to create helixes

or swirls. Usually in stemwares (Jones et al. 1985:50).

**“Casing”**: Different layers of glass, usually of different color, are fused together. Outer layers are often cut to reveal inner layers more clearly (Jones et al. 1985:52).

**“Copper Wheel Engraving”**: Technique invented in Germany in seventeenth century). Employed a copper wheel with an abrasive agent dripped onto it as it engraved. This created a frosted appearance on the engraved surface (McKearin and McKearin 1948:32). This is a mechanical etching technique, contrasted with diamond point engraving which was, until the late nineteenth century, a freehand etching technique.

**“Cut”**: Practiced in Germany in the seventeenth century, spread to other parts of Europe and then to America in late eighteenth century. Glass used for cutting tends to be thicker, stronger, and softer than other glass because it had to withstand three processing steps: roughing out, smoothing, and polishing (McKearin and McKearin 1948:31). Cuts are generally deep into the glass surface compared to marks made by techniques such as etching and engraving.

**“Diamond Point Engraving”**: Not practiced in the United States—on import glass only (McKearin and McKearin 1948:32). A diamond-pointed tool was carefully hammered along the glass surface, creating a fine, stippled line.

**“Enamel Twist”**: Colored enamels are encased in glass and manipulated to form twists.

**“Enameled”**: Application of enamel to the glass surface. This enamel usually contained lead, tin, and a metallic oxide that provided color (McKearin and McKearin 1948:33).

**“Engraved”**: A general term to be used when it is not clear whether copper wheel engraving, diamond point engraving, or some other type of engraving is present.

**“Gilded”**: Gold oxide painted onto the glass surface, fired, and then burnished (McKearin and McKearin 1948:33).

**“Mixed Twist”**: A combination of air twist and opaque twist; opaque twists are created by encasing opaque glass in colorless glass and manipulating it to form twists (Jones et al. 1985:50).

**“Molded”**: Glass is blown, either by mouth or machine, into some type of mold.

**“Painted”**: When glass is simply painted using non-enamel paints. Paint tends to wear off easily, and can sometimes be distinguished from enameling because paint appears “more transparent and smoother” (Jones et al. 1985:57).

**“Sand Blasted”**: “Invented in ca. 1870 in the United States (Newman 1977: 270), this treatment was only recently adapted to decorative uses. Grains of sand are directed by high air pressure from a portable “gun” across the glass surface. The result is a frosted, finely pitted finish, with a degree of depth. The technique has been used on large panels of glass and is not very common on Parks Canada sites” (Jones et al. 1985:57).

**“Silveria”**: When a thin layer of metal foil is placed between two layers of glass (Jones et al. 1985:50).

**“Tooled”**: Decoration is worked using pincers, shears or other tools. This is often how cordoning is formed.

## 8.2 Applied Color

Applied colors refer to colors that are painted, enameled, or otherwise applied to the vessel. Munsell each color using the **Basic Colors** section of the DAACS Color Book, and enter that information into the Applied Color field. Keep in mind that these represent ranges of color, not exact matches. In addition, the colors “Copper,” “Silver/Tin,” “Bronze,” and “Gold” may be used to identify Glass decoration color.

*Note*: If the decorative technique has no applied color, enter “No Applied Color” in this field. Do not use “Not Applicable.”

## 8.3 Stylistic Elements

See Appendix 1 for the Glass Stylistic Elements glossary.

## 8.4 Marks

Record any marks observed on the artifact, even if individual letters or numbers are not discernible. Enter marks as they appear on the object. Please follow the case (e.g., upper, lower, capitalization) and spacing of the mark on the object. It is not necessary to use quotation marks within the mark description.

If you have more than one horizontal line of text on a bottle, enter separate marks entries for each line. Given that this is an open text field, please denote which line of text is first or second in vertical order by adding “1<sup>st</sup> line:” before the transcribed text.



If you know that part of the lettering is within a word, then use ellipses to identify its relative location. For example, here is a fragment of a Turlington's "Balsam of Life" bottle:



The second line reads LSAM, and the corresponding marks entry would be "2<sup>nd</sup> line: ...LSAM"

If any word or letter is only partially discernible, use a question mark in brackets [?] to denote the uncertainty about its identification. Also use this protocol to represent letters or words that are not discernible at all. In the case of the Turlington's bottle above, the first line of the marks entry would be "1<sup>st</sup> line: [?]"

For this object, the complete Marks entry would be as follows.

- 1<sup>st</sup> line: [?]
- 2<sup>nd</sup> line: ...LSAM
- 3<sup>rd</sup> line: OF
- 4<sup>th</sup> line: LIFE

If you have additional information on the complete mark, or on the manufacturer, enter this into the Notes field on the Material tab.

## 9. CONDITION

The default for each of the following fields is "No." Simply choose "Yes" if any are applicable. When batching sherds according to condition **other than burning**, enter as "Not Recorded" when the batch contains sherds with and without evidence of condition.

### 9.1 Burned

Glass often becomes globular in shape when melted. Also, olive green "Bottle, wine style" glass tends to turn an opaque light blue when burned. If these or any other signs of burning are present, mark "Yes" in this field. As a reminder, most batching protocols divide glass that is burned versus glass that is unburned. If you cannot determine the form, completeness, and/or manufacture of a burned fragment, enter "Unidentified" in the applicable fields.

### 9.2 Solarized

Glass is colorless when produced. However, it contains manganese which will turn the glass a purplish tint when the glass has been exposed to sun for a long time (UV light). This type of glass was mostly produced during the last quarter of the nineteenth century. Solarized glass typically appears shiny or oily with a slight purple hue.

## 10. SPECIAL CASES

### 10.1 Wine Bottle Glass

<b>Material:</b>	"Non-lead"
<b>Glass Color:</b>	"Green"
<b>Vessel Category:</b>	"Hollow"
<b>Form:</b>	"Bottle, Wine style" (green glass with squared horizontal cross-section should be recorded "Bottle, Case")
<b>Manu Tech:</b>	"Free blown," "Mold blown," "Mouth blown," "Unidentified"
<b>Mold Type:</b>	Dependent on Manufacturing Technique

#### **A note on "Bottle, wine style" manufacturing technique and mold type:**

To determine the manufacturing technique of a sherd of "Bottle, wine style" glass, the first step is to examine whether the glass was molded in some way. Characteristic molding signs are: presence of a mold seam, regular body shape, and smooth surface without an "orange peel" effect. If no clear signs of molding are present and the bottle is not clearly free blown, catalog as follows:

**Manufacturing Technique:** "Mouth Blown"  
**Mold Type:** "Missing Information"

#### **Burned "Bottle, wine style" glass:**

This type of bottle glass often melts into amorphous lumps when heavily burned. Because of the color, however, one can still identify these lumps of glass as hollow wine-style bottles. Do not take a sherd thickness measurement unless both original sides remain unmelted.

Green, wine-style bottle glass also often turns an opaque blue when heavily burned. Catalog as described above, but list the color as Unidentified. Describe in the notes that heavy burning has turned the sherd blue or otherwise obscured the color.

### 10.2 Gastroliths

A piece of small, heavily eroded glass artifacts is a gastrolith, also called stomach stones or gizzard stone. These are cataloged in the Glass Table with the form as "Gastrolith." Record Color and Material accordingly. Category, Completeness, and Manufacturing Technique should be Unidentifiable.

All measurements should be taken and a brief description should be noted.

PLEASE NOTE: Stone gastroliths should be cataloged in the General Artifact Table and Ceramic gastroliths should be cataloged in the Ceramic Table.

### 10.3 Modern Glass

Although modern glass is recorded in DAACS, modern machine-made bottles and completely molded bottles are not included in the Glass Bottle Information Tab. This decision was made because the classification systems for molded and machine made bottles are enormously complex given the vast range of bottle shapes possible with molding. **See Section 1.1 (Artifact Count) for notes on batching machine-made glass.**

Dark brown bottle glass (cataloged as “brown” in DAACS) is almost always modern and machine made. Usually, this glass is from beer and soda bottles. Such glass should be cataloged as “Bottle, unidentifiable” unless there is some specific indication that the bottle is “Bottle, Beer” (for example, embossed lettering or label with a beer company’s name). Manufacturing Technique is “Machine Made.” Mold Type is: “Contact Mold”. There is no need to make notes about pontil marks.

### 10.4 Colorless Glass with Ambiguous Attributes

It is not uncommon to come across colorless glass fragments that exhibit curvature suggesting they are from a hollow object but lack diagnostic characteristics that indicate whether they are from a lamp or other lighting element or a container/vessel. Fragments with these characteristics should be cataloged as form “Unidentifiable” and the cataloger should describe in the notes why they believe these fragments could be from a lighting object.

## 11. IMAGE

Please see the Image Manual for details on how to link an artifact record to an image record.

## 12. OBJECT

Please see Object Manual for details on how to link an artifact record to an Object record.

## 13. MENDS

This field allows you to link the record to other artifacts that mend to it. It can functionally create multiple relationships among artifact records.

If your sherd is mended, fill out the appropriate information in the Mends tab. Be sure to complete the “Mended?” field on the Main tab. (Mended? “Yes”).

#### 13.1 Mends to artifact

Enter only the artifact IDs for sherds that are directly mended to the sherd being cataloged.

#### 13.2 Mended Form

The default for this field is “Not Mended.” Form should always be identified on an individual sherd level. Mending often allows catalogers to identify forms otherwise unidentifiable from these individual sherds. In the Mended Form field, enter in the form of the vessel as seen from its mended sherds.

## 14. REFERENCES

Jones, Olive

1971 Glass Bottle Push-ups and Pontil Marks. *Historical Archaeology* 5:62-73.

Jones, Olive and Catherine Sullivan, with contributions by George L. Miller, E. Ann Smith, Jane E. Harris and Kevin Lunn

1985 *The Parks Canada Glass Glossary for the description of containers, tableware, flat glass, and closures*. National Historic Parks and Sites, Canadian Parks Service, Environment Canada: Ottawa.

McKearin, George and Helen McKearin

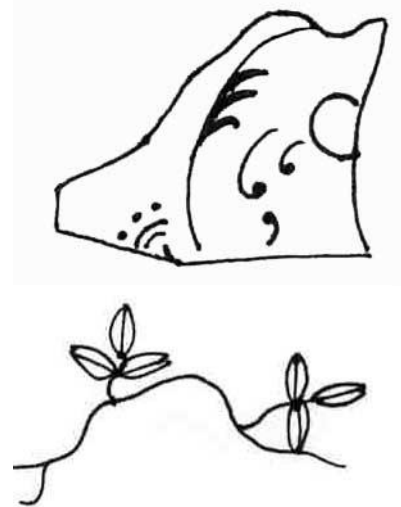


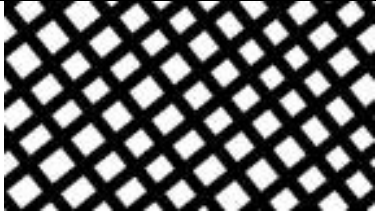
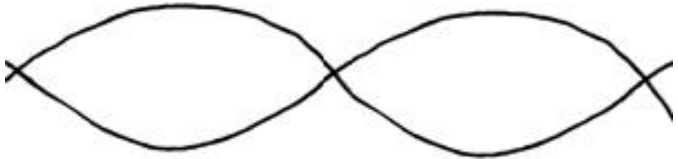
1948 *American Glass*. Crown Publishers, Inc.: New York.


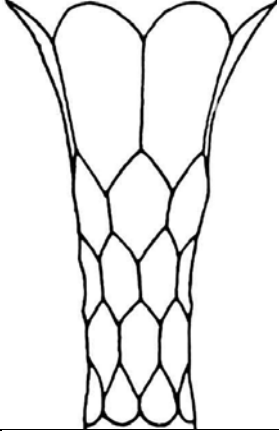
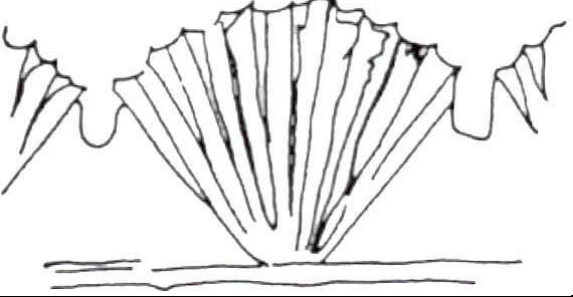

Newman, Harold

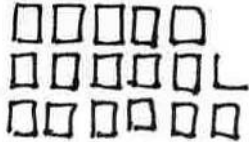


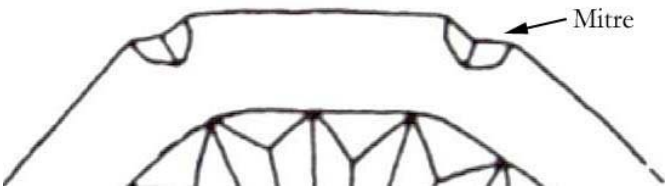
1977 *An Illustrated Dictionary of Glass*. Thames and Hudson: London.

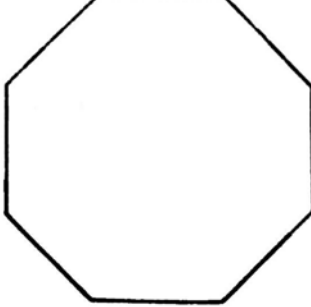
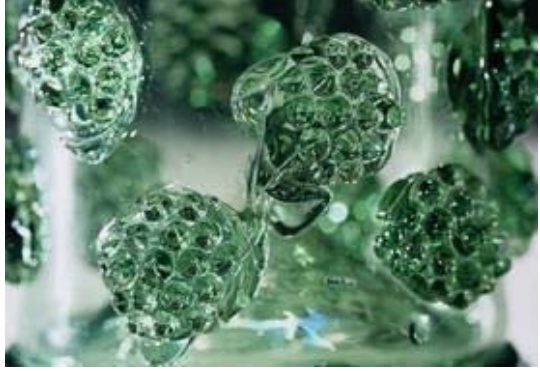
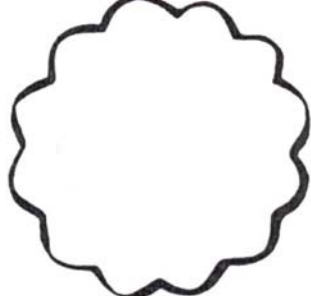

## APPENDIX 1: GLASS STYLISTIC ELEMENT GLOSSARY

Stylistic Element	Description	Image
Band	A straight band that encircles a vessel..	

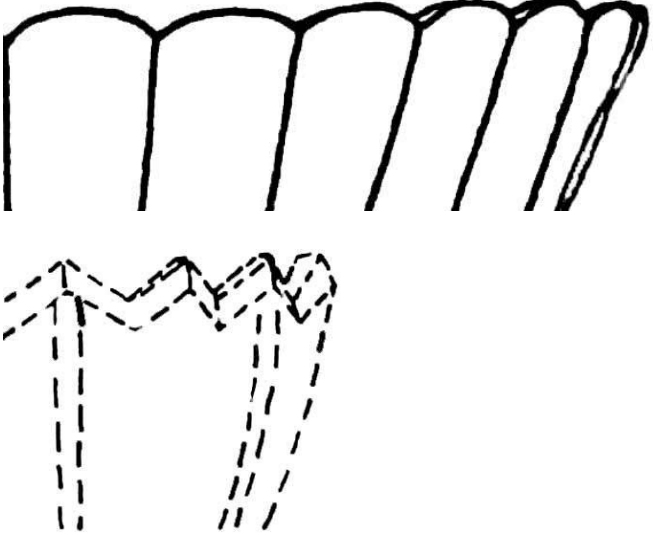
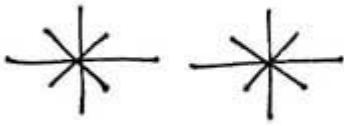
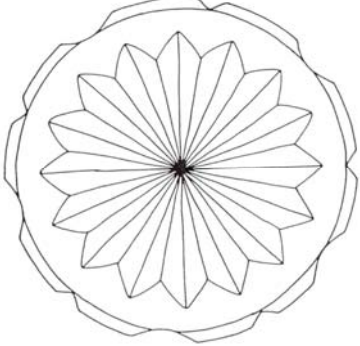
<b>Botanical</b>	Any botanical or floral-type element, be it a realistic or abstract rendering.	
<b>Cartouche</b>	Thick lines, normally curved, enclosing letters or symbols. The cartouche pictured includes thick, curved lines and areas of cross-hatching.	
<b>Cordoned</b>	Stacked parallel lines encircling a vessel, s. Most often formed by molding tooling (see Dec Tech section 6.1). Unlike ribbing, which is most often oriented vertically on a vessel, cordoning is horizontal.	
<b>Cross-Hatching</b>	"A series of lines crossing over each other. In glass, these are most commonly created by engraving." (Jones et al. 1985:58)	
<b>Double Wavy Band (currently in the database as Dble Wavy Band due to space constraints)</b>	Two interlocking wavy bands that create the appearance of connected ovals or ellipses.	

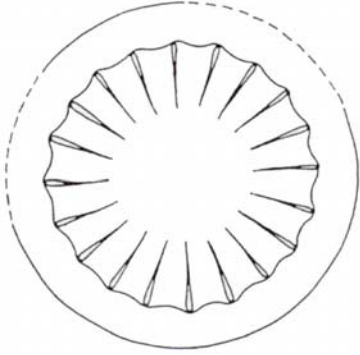
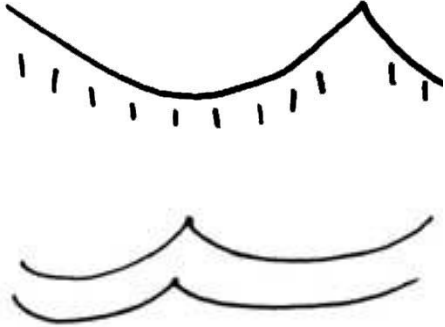

<b>Diamonds</b>	One or more diamond shapes engraved or etched into the glass.	
<b>Dogtooth Band</b>	A regular, sharply jagged band.	
<b>Dots</b>	Small circular point or points painted or etched into the glass	
<b>Facets</b>	One or more small, distinct elements of various shapes cut or molded into the glass.	
<b>Fan</b>	One or more fan shapes.	
<b>Flutes</b>	<p>"Repeating pattern of distinct, concave units parallel to each other, either adjacent to each other or at short intervals." (Jones et al. 1985:58).</p> <p>Fluting is a common architectural embellishment, perhaps best represented in classical columns that is used heavily in neo-Classical and Federal</p>	 <p>Plan view of fluted vessel</p>

	design on houses, furniture, cabinetry, ceramics, etc.	
<b>Hobnails</b>	A regular pattern of raised knops or bumps formed by blowing or pressing glass into a mold.	
<b>Honeycomb</b>	A regular pattern of connected polygons (can be either hexagons or octagons; hexagons are pictured).	
<b>Lettering</b>	Record the presence of any lettering on non-machine-made objects. The specific words, letters, or numbers should also be recorded in the "Marks" field (see Section 5.4). Be sure to record the manufacturing technique and any applied color.	
<b>Mitre</b>	A V-shaped groove or incision cut into the glass.	
<b>Notches</b>	A regular pattern of small, shallow incisions or nicks cut, engraved, or etched into the glass.	
<b>Other, see notes</b>	Used when none of the other authority terms apply. The decoration should be imaged and thoroughly detailed in the Notes field.	

<b>Panels</b>	A (generally) flat section of a multi-sided vessel. "The panels or sides are generally of consistent or repeating sizes" (Jones et al. 1985:58). Panels are either molded or cut. They can extend the entire height of the vessel or take the shape of an arch, ending below the rim.	 <p>Plan view of paneled vessel.</p>
<b>Prunt, raspberry (currently in the database as Prunt, raspberr due to space constraints)</b>	A type of flat circular prunt [a blob of glass applied to a glass object as a decoration] on which there is a relief design, impressed with a tool, that has the appearance of a raspberry (Newman 1977:256).	
<b>Ribs</b>	"Repeating pattern of convex units parallel to each other." (Jones et al. 1985:58).	 <p>Plan view of ribbed vessel.</p>
<b>Scallop Band</b>	Band consisting of a series of rounded teeth or half-circles.	



<p><b>Scallop/Sawtooth Edge</b> (currently in the database as <b>Scldpd/Sawt Edge</b> due to space constraints)</p>	<p>A repeating pattern, located on the rim of a vessel, consisting of rounded or pointed projections.</p>	
<p><b>Solid</b></p>	<p>Used when one or more surfaces of the glass sherd is covered by paint, enamel, or gilt.</p>	
<p><b>Star</b></p>	<p>Any star or asterisk-shaped design cut, engraved, or etched into the glass.</p>	
<p><b>Stippled</b></p>	<p>A series of small, close-set dots, whose decorative technique is usually molded, but can be diamond point engraved or acid etched.</p>	
<p><b>Sun/Starburst</b></p>	<p>Most commonly found on the base of vessel, starbursts and sunbursts consist of molded or cut rays radiating outward from a center point.</p>	

		 <p>Sun/Starburst</p>
<b>Swag</b>	Any element depicting a garland or drapery that is fastened at both ends and hangs down in the middle.	
<b>Teardrop</b>		
<b>Twisted</b>	Used to describe the elements seen in enamel and air twisted stems.	
<b>Unidentifiable</b>	Used when a decoration is present, but no specific details can be determined or the decoration is so small that an image or detailed notes are of little to no use.	
<b>Wavy Band</b>	One or more undulating lines.	

**Wrythen**

Simple decoration where external parallel grooves or ribs (applied either by hand or by blowing the parison into a dip-mold) are given a twist during blowing to create a spiral pattern.

