



# BASIC INFORMATION

## INTRODUCTION

Crystal components can be processed very simply and effectively thanks to the unrivalled product quality and the application systems developed by Swarovski. To maximize these benefits, Swarovski has introduced its unique Application Support service which passes all its application expertise onto all its users.

This manual gives you a brief overview of the most important crystal processing techniques. You can obtain more in-depth support from our technical specialists, who are available throughout the world, or on our business-to-business website: [www.business.swarovski.com](http://www.business.swarovski.com).

Here you will find, amongst other things, a wide range of multimedia support which we are continually developing, including animations, FAQs and hints and tips, which will help you meet a variety of technical challenges. Turning dreams into reality is, after all, what the fashion business is all about!

## OVERVIEW OF APPLICATION METHODS

PRODUCT GROUPS	SELECTION OF PROCESSING OPTIONS						
	GLUING*	HEAT*	BEADING	SEWING*	SOLDERING*	MECHANICAL*	SETTING
ROUND STONES	■						■
FLAT BACKS NO HOTFIX	■						■
FLAT BACKS HOTFIX		■					
SEW-ON STONES	■		■	■			
FANCY STONES	■		■	■			■
BEADS			■	■			
CRYSTAL PEARLS			■	■			
PENDANTS			■	■			■
TRANSFERS		■					
CRYSTAL FABRIC	■	■		■			
PLASTIC TRIMMINGS	■	■	■	■		■	■
ZIPPERS				■			
BUTTONS & FASTENERS			■	■		■	
METAL TRIMMINGS	■			■		■	■
CRYSTAL MESH NO HOTFIX			■	■			
CRYSTAL MESH HOTFIX	■	■		■			
CUPCHAINS & FINDINGS			■	■	■	■	■

\* These application methods are described in detail in this manual. You can obtain information about all other types of application from your Swarovski partner or on our website [www.business.swarovski.com](http://www.business.swarovski.com).

Our oral, written, and advice by testing are recommendations based on our current state of knowledge and the information provided by our suppliers. It does not discharge you from carrying out your own tests of the proposed techniques and their suitability for the intended application. You will therefore apply, use and process the techniques and products within your sole responsibility.



## SOLDERING, ELECTROPLATING AND OTHER PROCESSING METHODS

Soldering Swarovski Cupchains is a simple and straightforward method of creating modern jewelry and accessories.

Cupchains and Findings are available unplated or with a variety of finishes ranging from gold-colored and silver-colored through to sterling silver.

## OVERVIEW OF TOOLS AND AIDS



Soldering kit



Soldering molds



Soldering aids

### SOLDER



1



2



3

#### 1 Solder wire

Solder wire is the type of solder most frequently used for making Cupchain jewelry. We recommend using solder wire with a flux core, which guarantees an even flow of solder. The melting point of the solder should be a maximum of 185°C (370°F). If the solder is applied correctly, it flows into the gaps in the jewelry and forms strong joints.

#### 2 Solder paste

Solder paste containing flux must be applied to exactly the right spot to create a clean solder joint.

#### 3 Solder pellets

Make sure that you put the solder pellets in an acid flux before use to ensure that the solder flows correctly.

### APPLYING THE SOLDER



Correct application



Too much solder



Too little solder

## SOLDERING



1



2



3



4

- 1 Cut the Cupchain to the required length.
- 2 Put the Cupchain in the solder mold.
- 3 Solder the required spots.
- 4 Remove the soldered Cupchain from the mold.

## HINTS AND TIPS

### FLAME SIZE



One of the most important criteria for the successful creation of Cupchain jewelry is the flame size. Avoid using too large a flame.

### FLOW OF SOLDER

Only heat the part of the jewelry where you want the solder to flow.

### QUANTITY OF SOLDER

Use the right amount of solder. Too much or too little solder can damage the piece you are creating or cause the crystals to discolor. If you use the right amount of solder, you will create strong, neat solder joints which can be plated without problems.

### SOLDERING TIME

Avoid leaving the flame on the jewelry for too long. You will put less stress on the jewelry if you regularly allow it to cool down. Move the flame away from the jewelry at regular intervals.

You can find more detailed information about other processing options and electroplating Swarovski Cupchains on our website [www.business.swarovski.com](http://www.business.swarovski.com)

## CLEANING

We recommend cleaning soldered pieces of jewelry as soon as possible after the soldering process. This will make electroplating significantly easier.

Note that not all polishing devices are guaranteed to handle the pieces with sufficient care during the cleaning process. Drums which are too hard or which rotate too quickly can damage your jewelry.

In order to maintain the high quality of your creations, we recommend a maximum temperature of 100°C during the cleaning process.

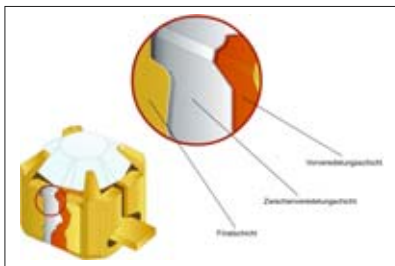
## USING END CONNECTORS

Electroplated Cupchains and Findings can easily be made into striking pieces of jewelry using Swarovski end connectors.



The end connectors are fastened to the end of the Cupchains using flat-nosed pliers and then connected together using split rings and karabiners, for example.

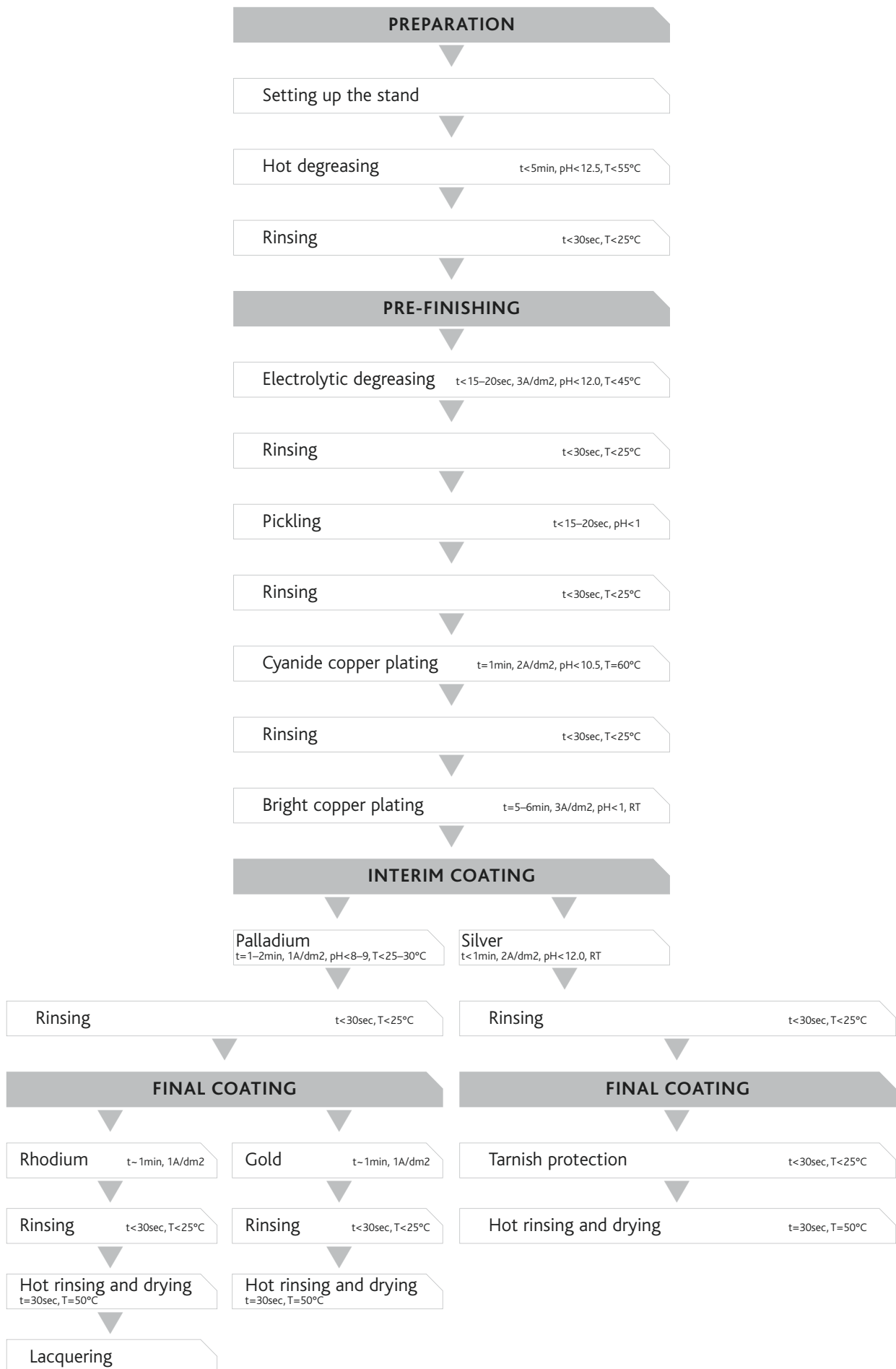
## FINISHING



The most important factors for ensuring a high quality finish coating are:

- Careful maintenance of the unit and the electrolytes
- Selecting reliable suppliers that offer a good service and provide detailed instructions for using their electrolyte.
- Choosing suitable high performance electrolytes
- Using the recommended settings for electroplating Cupchains

SETTINGS FOR ELECTROPLATING CUPCHAINS



## TROUBLESHOOTING

### FAULT

<b>FAULT WITH THE METAL COMPONENTS</b>	
Cracked solder	1, 2, 3, 4
The piece of jewelry has restricted movement.	2, 6
Overall defective metal surface	2, 7
Uneven surface	8
Defective finish on the soldered areas	9
Corrosion	10
<b>FAULT WITH THE CRYSTAL</b>	
The crystal is chipped.	11, 12, 13, 14
Discolored crystal	15, 16, 17, 18

FAULT	CAUSE	RECOMMENDATION
1	Too little solder	Using too little solder weakens the solder joint, as the solder gap is not completely filled.
2	Too much solder	The use of too much solder can result in cracks. The solder joint is too large which means that any force applied to the piece affects the solder. The thicker the layer of solder, the weaker it is, which can result in it cracking.
3	Insufficient flow of solder	Various factors can contribute to an insufficient flow of solder: <ul style="list-style-type: none"> <li>• If the flame is too small, the solder and the cup do not become hot enough.</li> <li>• If the soldering temperature is too high, the flux can vaporize. This means that the solder is not able to cover the metal surface.</li> <li>• The melting temperature of the solder is too high.</li> </ul>
4	Dirty metal surface, solder, flux or solder mold	All the components must be clean and completely free of dirt. Make sure in particular that the metal surfaces are clean (and above all free of grease).
5	Too much solder	Make sure that you do not use too much solder near to the moving elements.
6	Exposure to the finishing processes for too long	Keep the exposure times for functional and flexible elements as short as possible. We also recommend optimizing the polishing process and using high performance electrolytes.
7	Inadequate cleaning	Inadequate or incorrect cleaning after soldering has a negative impact on the finishing processes. Check the cleaning process.
8	Faults in the finishing process	If there are irregularities in the metal surface, such as burns, pores or orange peel, this is generally a result of a poor quality polishing process or electroplating baths which are not correctly set up.
9	Faults in the soldering, cleaning or finishing processes	Poor quality, unsightly finishing on the solder areas can be the result of incorrect soldering, insufficient cleaning after the soldering process (in particular when using solder containing lead), the use of sulphuric acid in the pickling process or a sulphuric acid copper bath.
10	Faults during the finishing process	Tarnishing or corrosion is often caused by insufficient rinsing or contaminated rinsing water. Keep the transfer times between the individual stages of the process as short as possible. Rapid tarnishing of silver can be prevented by using effective tarnish protection systems (e.g. coatings, wax, lacquer etc.).
11	Faulty solder mold	The solder mold must be designed in such a way that hardly any pressure is needed to position the Cupchain segment in the mold. If the cups are subjected to high levels of mechanical stress or deformation, the crystals may be damaged.

## TROUBLESHOOTING

FAULT	CAUSE	RECOMMENDATION
12	Thermal shock	A sudden fall in temperature during the soldering process can cause tensions in the crystal. This can result in the crystal being damaged, for example chipping. Avoid extreme differences in temperature during and after the soldering process.
13	Using polishing drums	Hard polishing components in a rotating polishing drum can damage the surface of the crystals. Check the quantity, the polishing agents and time, the rotation speed and the height of the fall. Keep the mechanical stress levels as low as possible.
14	Using electroplating drums	In general we recommend plating Cupchain jewelry in electroplating stands. However, if a drum is being used because of the size or shape of a piece, note that heavy or sharp objects could damage the crystals. Choose the best possible drum type, rotation speed and fall height. When the drum is between the different stages of the finishing process and contains no liquid, the items being electroplated inside the drum could damage one another.
15	Soldering temperatures too high	Soldering temperatures that are too high (e.g. flame too large, soldering times too long) result in the solder joint overheating and the crystal being damaged. It could be helpful to use a solder which melts at a lower temperature.
16	Too much solder	The use of too much solder can cause damage to the foiling on the crystals which can result in them becoming discolored. Remove one crystal and make sure that there is no solder in the cup. Reduce the amount of solder used, for example, by choosing solder wire with a maximum diameter of 1 mm (0.04 inches).
17	Cleaning with ultrasound	If ultrasound is used too aggressively and intensely or for too long a period, this will have a negative impact on the crystals and in particular the foiling.
18	Faults in the finishing process	Possible causes of discolored crystal may include the individual stages of the finishing process. Check the alkalinity, current density, exposure times, temperatures, the use of ultrasound, rinsing techniques and post-processing, amongst other things.