



**Autrans – VERCORS Nature Reserve
1st October 2006**

Glide wax application

The necessary material:

- preform + waxing profile or table
 - waxing iron
 - hand brushes for final finish: gentle nylon or natural silk
 - hand brushes for general use: medium nylon, stiff nylon
- or
- roto brushes + shaft: medium nylon, stiff nylon
 - roto corks for Cera application
- or
- synthetic cork
 - a minimum 5mm width acrylic plexi scraper
 - electric drill to work with roto brushes
 - pencil groove scraper
 - absorbing paper
 - Fiberlene or nylon stockings
 - thermometer / hygrometer / notebook / calculator

Cleaning and preparing the ski base

Put your skis on a waxing table and fix them.

Case n°1: General ski maintenance at the beginning of the season (clean snow)
Proceed to mechanical cleaning using a wax for cold snow (PFX 1 or 6 LOW) and hot scraping technique. Apply a little more wax than usually for racing. Adjust a plexi scraper close to your iron so that it makes contact with your ski base. While hot scraping, a comb will be formed between the scraper and the iron. While moving it will dissolve and lift old waxes, remains and dirt from the depths and the pores of the ski base. You can compare this method and its results to waves on the sea shore.

Case n°2: Ski maintenance at the end of the season (dirty snow).

Pour into a container a small amount of liquid cleaner and apply it along your ski base with the help of a paintbrush.

To clean the depths of the structure brush the base from tail to tip using a brass brush with very fine bristles (30 to 70microns).

Repeat the procedure; keep your base always humid. Then clean it with a cloth or absorbing paper.

Common procedure before storage or other wax application

To "open" the base fibres brush your ski base from tail to tip (1) using a stiff nylon brush, preferably a roto one (mounted on a steel shaft without a cord). It will allow better wax saturation to your base during the next step.

(1) Attention: this is the only operation demanding reverse brushing (from tail to tip).

Make a weather report for several parts of the track.

To have better glide is to divine the state of snow and its probable transformation. Divining resorts to your memory and even if it is highly improbable to find the same types of snow, we advise you, nevertheless, to make your own data base.

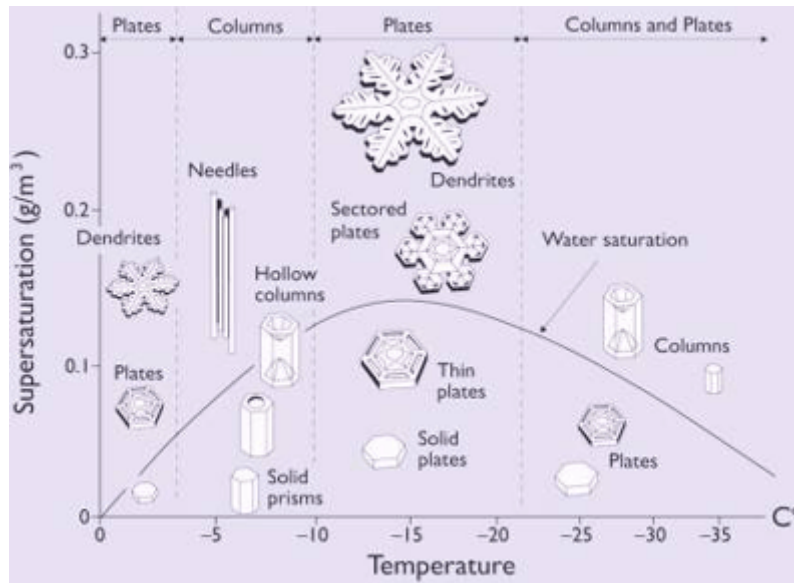
Weather:

- Sun
- Sun / Shadow
- Shadow
- Cloudy
- Cloudy + snow
- Cloudy + rain
- Mist

Snow is the kind of material that constantly evolves, starting from its formation in the atmosphere, during its fall and up to its melting on the ground. It undergoes cyclic transformations affected by the sun, night refreezing, its own weight, wind, temperature and humidity fluctuations and mechanic grooming. Such evolution of snow crystal shapes leads to constant modification of mechanical properties of a snow mantle .

Defining the type or the family of snow crystals is very important to choose the right structure and the right wax. Here is the diagram that will allow you to define the type of snowflakes for the falling snow according to weather conditions.

Remember that most of the time the snow is groomed, and thus, transformed.



Types of snow:

- Fresh snow
- Fine grains
- Needles
- Prisms
- Rounded grains
- Plates
- Artificial (fine droplets)
- Mixed

General snow aspect:

- Clean
- Half dirty
- Dirty
- Very dirty

A report to make on a test card:

- **Place:** ... exact locality and altitude
- **Date:**
- **Time at the beginning of the test:**
- **Time at the end of the test:** including the whole test phase, the choice of structure, base wax and Cera
- **Weather conditions:** see "weather" list, you can mix the chosen waxes
- **Last snow day:** the number of days after the last snowfall
- **Air temperature:** use a digital thermometer with an external probe and note the tenths
- **Snow temperature:** the same goes for snow temperature, put the probe 5cm deep into the snow at an angle
- **Humidity (%) :** use a hygrometer without a porous cup
- **Snow type:** see "types of snow" list, make a multiple choice
- **Snow aspect:** see "general snow aspect" list
- **Structures:** if you use a digital structure tools, note the depth of the grooves in

microns and their orientation, ex.: 15µm / 65°

- **Observations:** general notes on test conditions

GLIDE WAX APPLICATION

(Alpine skiing, cross-country skiing, snowboard)

Basic wax application PFX10 - PFX6 - PFXG8 - (HF - LF - CH)

- Set your iron temperature as it is advised by the manufacturer. Take the room temperature into account.
- Melt the wax on your iron plate and let the wax trickle down on the base homogeneously.
- Iron your base from tip to tail, be regular and move slowly.
- Remove the edges at once, do not wait (2) and scrape wax excess with a plexi scraper, moving from tip to tail. Do not press your scraper too hard.
- Let it cool down and brush your base structure from tip to tail with a stiff nylon brush to clean roughly and then with a medium nylon brush to clean the structure more thoroughly. Use a natural silk brush to polish the base, finish with one continuous stroke.
- Wipe your base with absorbing paper.

(2) All our studies show that hot scraping is much better, the wax molecule remains unchanged, you clean your skis structure while preserving the base flatness (only advantages!). If you use hard wax for very cold snow, don't wait and brush once the wax is applied.

Now you can move to the test protocol of the best wax.

Step 1.

Prepare a number of skis with the same wax (standard wax).

Mark the track for timing on a distance of approximately 40-50 m, so that timing doesn't exceed 10 seconds. Mark your skis chronologically: 1, 2, 3, 4... in the order of testing. Note most of the information that you can in the test card given below.

N° ski	T n°1	T 2	T 3	T 4	Mean	% / calibr.
1	val1=6.27	6.32	6.35	6.33	mean=6.325	0.39%
2	6.25	6.28	6.32	6.36	6.3	0%
3	6.39	6.41	6.42	6.36	6.4	1.18%

Now you can proceed to calculations of the first line:

Delete the largest and the smallest extremums of the first set: 6.35 and 6.27.

Mean value = $(6.32 + 6.33) / 2 = 6.325$.

Calculate mean values and loss percentage for each line. For this, mark the smallest mean value close to 0% and use this reference to calculate the last column of your table:

Ref val = reference value = the smallest mean value = 6.325.

Loss = $(\text{Mean val} - \text{Ref val}) / \text{Ref val} \rightarrow$ then multiplied by 100. The same goes for

each line. You have just classified your skis!

Step 2.

Relying on your wax and Cera suppliers' selection tables, choose three waxes. Prepare 3 pairs of the most rapid skis with each wax and do the timing again as in step 1.

N°	T1	T2	T3	T4	Mean	% calibr	Revised time	Disparity % Difference
1	6.07	6.12	6.15	5.99	6.095	0.39%	6.071	0%
2	6.25	6.18	6.59	6.02	6.215	0%	6.215	2.37%
3	6.30	6.38	6.39	6.32	6.35	1.18%	6.275	3.36%

Take figures from the %calibrage column and apply the difference to revise the time.
Ex. : ski n°3. Revised time = $6.35 - 1.18\% = 6.275$.

Step 3.

As snow conditions (types of snowflakes) differ along the track (more or less abrasive snow), it is advised to test your skis on a 5km distance and do the timing again to confirm the final choice. The final choice is based on this calibration phase for wax selection, but most of all on the sensations that you had on the 5km distance.

Timing selection is recommended for windless conditions. You can substitute it with a speed/distance test. For this, on a long and gentle slope mark a start zone, take a racing position and slide down until you come to a stop. Put these skis aside and test the two other pairs.

ATTENTION: THE LAST TYPE OF TEST HAS NO REFERENCE VALUE, IT IS BETTER TO RELY ON YOUR SENSATIONS OF SPEED, ACCELERATION AND SNOW TOUCH.

Cera 100% Fluorocarbon application

First of all, put a gas mask (to protect your eyes) with a filter for organic vapour. Put on your gloves.

Apply the Cera evenly on your base, the containers include a powder dosimeter. Using an iron set on 150°C melt Cera in short successive touches along your base. Iron in slow to-and-fro movements and finish with a continuous stroke. Wait 1 or 2 minutes. Brush lightly using a medium nylon hand brush with a thick bunch of bristles without removing Cera excess. Rub this excess on using a roto cork or a synthetic hand cork. Continue brushing with a medium nylon brush and finish with a silk brush. Polish and remove fat excess with absorbing paper in one stroke.

Liquid CeraMax 100% Fluorocarbon application

Thanks to its unique qualities, liquid Cera Max remains the best accelerator among the new generation of liquid waxes. It is a liquid 100% fluorocarbon synthesis based on Cera Max PFX technology. It was designed as a final layer for competitions and it provides better performance on a certain type of snow (corn snow, very wet snow > 85%, rainy weather...) comparing to powder Ceras.

Easy and fast to apply, liquid Cera Max will give you remarkable acceleration and maximum speed on long distances. These liquid waxes are destined as well for

"multiples runs", such as second run in alpine races, boarder and ski crosses, half-pipe, ski-jumping and cross-country sprints.

You get better results by applying liquid Cera Max with a Fiberlene or a felt applicator and then brush it manually (using silk brushes). Do not iron.

Three drops are enough to finish a ski prepared with basic wax PFX10 - HF. Your ski base should be glittering evenly. Some solvents cannot remove this product after competitions, we advise you to apply abundantly either cold maintenance wax (PFX6 Low) or to iron it with absorbent paper.

Attention: applying this product in excess devaluates the important role of your skis structure.

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