

Information you should know when evaluating microdermabrasion systems.

Introduction. There is a lot of information compiled on this web site, all about the equipment that delivers a simple treatment known as microdermabrasion. It is intended to give you an idea of what to be looking for and what to expect. If you take the time to read everything, it will vastly improve your chances of being successful in the microdermabrasion business. There are some superior systems, many that are mediocre and plenty of systems with problems you want to avoid. This is not meant to be negative or to lead you in any one direction: you should be aware of the good and bad options, be able to intelligently distinguish which is which, and end up being comfortable with your purchase. The goal is to help you be successful, whether you buy a system from us or from another quality vendor.

There are so many factors to consider when starting a new business or adding a service to an existing business. The economics of the potential revenue versus the cost is one of the primary points every businessperson must evaluate before they begin. The purchase price may be the first factor you examine when shopping for a microdermabrasion system. It is not recommended you begin there, but more importantly, do not stop there. Buying a system solely on price (or on someone's recommendation), without performing your own evaluation in an educated and thorough manner, may lead you to failure right from the start.

Your professional reputation is on the line. If you were given a system for free, the cost of failure is still very high: if customers think you are taking their money without delivering what you promised, you will have a difficult time repairing your reputation. Getting people in the door is important: getting them to keep coming back is what really matters. Don't ever forget that your clients will be paying you to deliver noticeable results. Microdermabrasion is not just a "fluff" treatment. Make sure the system will work to your complete satisfaction so you have the confidence to make that promise to your clients.

Before you start your search, keep this in mind; There are many poorly designed microdermabrasion systems that will only be effective in testing your patience and disappointing your clients. If you need proof of this, begin by looking at used machines. They are being sold for a reason: they do not work or they have major problems. Why would anyone sell a system that is making money for his or her business? The reality is, many systems clog on a regular basis. Do you want to own a system that requires you to clean and test it before each and every client arrives but may still clog in the middle of a treatment? In addition to clogging, a majority of the systems do not have the vacuum strength, crystal flow or airflow to actually perform an abrasion. Just because it uses crystals and has vacuum does not mean it will be effective. There is no governing body to oversee the quality control of these systems. Don't waste your money and don't risk your reputation.

Be aware that an equipment sales person may or may not know the faults of the system they are selling. Regardless of their intentions, they will try to get you to focus on what they believe to be the features that will produce a sale. Their job is to sell you, not to educate you. Impressive marketing materials, a smooth presentation, a fashionably colored system or an unbelievably low price may really grab your attention. Don't be misled or distracted. This is truly a case of "it is what's inside that counts". Know what questions to ask and what features are important. Do your best to understand the technology so you can respond to a salesperson's presentation in an intelligent, informed manner. Print out the "How to Test a Microdermabrasion System" pages as an outline for your discussions and/or meeting with the salesperson. It is recommended that you read all this information, and information from other sources too, before you begin your evaluation process.

First of all, focus on what you are going to promote and sell. You will be advertising a service widely known as microdermabrasion and that treatment is comprised of two main components: an abrasion of the skin and an application of vacuum to the skin. Most of the systems currently available cannot do an abrasion or vacuum effectively or safely, and some systems cannot do either. The majority of the systems do not accurately indicate the setting or pressure of the system so you have to rely on guesswork and approximation. You can find competitively priced systems that are safe, effective, reliable and accurate, but you have to know what to look for.

These are the topics covered:

Understanding How a Microdermabrasion System Works

Abrasion and Vacuum

Evaluating a System's Abrasion and Vacuum Qualities

Pressure Gauge

System Clogging Issues

Maintenance-Free Claims

Recommendations by Other Skin Care Professional

Can the System use Different Types of Crystal Material

Low Cost Crystals and the Cost of Operation

"Natural" and "Non-Crystal" Systems

Is Corundum Safe?

Is the Device FDA Approved?

Medical Grade Systems

Does the System Have the Proper Filters?

Does the Skin Have to be Dried Before Treating?

"Diamond" and "Diamond Shaped" Crystals

Warranty Claims – Lifetime

Trade-in and Buy-back Policies

Marketing Materials and System Appearance

Referral Fees

Understanding How a Microdermabrasion System Works In order to understand what an effective system is comprised of, you should understand the main principle of how it works. If you can understand the physics part of what is occurring, you will stand a greater chance of ending up with a machine that will help you to be profitable and to grow your business. The physics of the treatment is undeniable and we challenge any person or company that says this information is incorrect. We hope you can visualize this from our explanation.

Since the majority of the people reading this do not have a system to look at, we will describe this in very simple terms and images. Every microdermabrasion system has a vacuum motor, a clean crystal supply container, a specially designed handset where the crystals are delivered to the skin and vacuumed away, and a waste canister where the used crystals and skin debris is deposited. These systems are, essentially, a vacuum cleaner combined with a sandblaster. The skin is receiving a "sandblasting" treatment and the sand (or crystal, in this example) is propelled by the vacuum. The sandblasting and vacuuming action is part of a loop: the vacuum motor draws the air that carries the crystals from the clean container, through the system, into the waste container. Along the way, the crystals strike the skin and perform the abrasion. This is referred to as a closed loop system.

How does the vacuum drive the crystals to the skin and clean them up too? This is achieved by a specially designed handset that is a very critical component of the system. Think of the handset as a thick magic marker and, just like the magic marker, one end of the handset has a removable cap. This cap has an opening on the end of it that is about the size of a pencil eraser in diameter (some designs are larger, some smaller). This opening is referred to as the application window and is where the crystals strike the skin. Protruding from the opposite end of the handset are two

tubes, one for clean crystals and one for dirty crystals, and those tubes are attached to the machine. See Figure 1 for the photo with the cap installed.



Figure 1

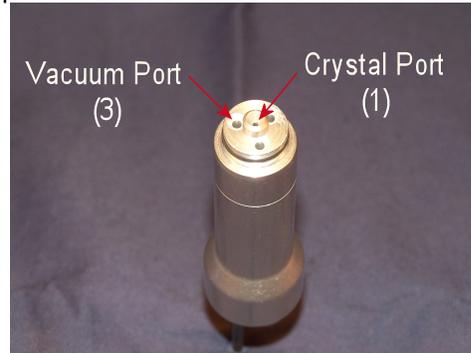


Figure 2

If you were to take the removable cap off the handset (see Figure 2), you would find two types of openings, or ports, on the end of the handset; one is where the crystals exit before striking the skin and the others for the vacuum. (The above photos display the Bella handset, which has 3 Vacuum Ports, all other designs have only 1 Vacuum Port.) These ports lead to the two tubes that attach the handset to the machine. The vacuum ports are connected to the dirty crystal tube that leads back to the machine, through the waste container, and then to the vacuum motor. The crystal port is connected to the other tube leading back to the machine and to the clean crystal container.



Figure 3



Figure 4

When you turn the vacuum motor on, you can hear and feel the vacuum motor drawing the air through the vacuum port in the end of the handset (see Figure 3, which the red arrows indicate the direction of the airflow). When you put the removable cap back on the handset, you can hear and feel the air being drawn through the application window (see Figure 4, which the red arrows indicate the direction of the airflow). At this point, there are still no crystals being emitted from the handset tip.



Figure 5

If you close off the application window by putting the handset in contact with the client's skin (or covering the application with your finger, as shown in Figure 5), the vacuum motor will begin to create a vacuum in the handset cap. The vacuum being created in the handset cap will draw the air out of the crystal port. This movement of the air into the handset cap will initiate the flow of crystals and deliver them through the crystal port. The crystal port aims the crystals at the client's skin, which is exposed in the application window, performing the abrasion. Once the crystals strike the skin, the crystals, along with the skin debris and oil, are then drawn back into the vacuum port (as indicated by the blue arrows in Figure 5), through the dirty crystal tube and deposited in the waste container. When you lift the handset off the client's skin, allowing air to enter the application window, the vacuum in the handset cap is broken (and no longer draws the air from the crystal port), interrupting the crystal flow and ending the abrasion.

Now the physics part of this lesson. The crystals need to be traveling very fast in order to sandblast the skin. What is happening, put in physics terms, is this; in order for the particles to have the required kinetic energy to perform an abrasion, they need to have enough mass, combined with sufficient velocity. This means the crystals have to weigh enough and be moving fast enough to collide with the skin with enough force to remove a piece of stratum corneum.

Again, let's put this in simple terms. Compare the microdermabrasion system to your garden hose and faucet. If you open the faucet connected to your garden hose and put your thumb or finger over the end of the hose, you can spray with enough force to clean your car or driveway. The two ways you can increase the strength and cleaning power of the water stream is to either turn up the water pressure by opening the faucet, or pressing harder with your finger over the end of the hose to make the opening smaller. Those two factors can create a powerful stream of water that has maximum cleaning power. Turning the faucet all the way open delivers maximum water pressure. Making the opening smaller with your finger increases the exiting speed of the water (without anything over the end of the hose, you have a certain volume of water exiting the hose, with your finger pressed into the end of the hose, making the opening smaller, you have the same volume of water exiting the hose so it has to move faster through the opening). The smaller you make the opening, the tighter the stream of water; it will have more power, but it will cover a much smaller area.

The microdermabrasion system is very much like the garden hose. The vacuum motor and control is like your faucet and the water pressure. If you turn up the vacuum power on the microdermabrasion system, you basically increase the air volume that carries the crystals to the skin. The handset and the port where the crystals exit are like your garden hose and your finger. The crystal port in the handset (just like the opening created by your finger in the end of the garden hose) is much smaller than the size of the hose leading to it. The port for the crystals in the handset is also referred to as the accelerator because it accelerates the air (and crystals) exiting that opening. The smaller the manufacturer makes the accelerator, the faster the crystals are moving when they strike the skin.

As you can see, the vacuum pressure directly controls the level of abrasion. A low vacuum pressure delivers a slight abrasion; a high vacuum pressure delivers an aggressive abrasion.

There is no way you can apply the same amount of vacuum pressure to each and every one of your clients because there are multiple skin types. You need to have a system that accurately controls the vacuum pressure so you can make adjustments for each situation and also be confident in the level of abrasion you are providing. The system must also have a gauge that measures the vacuum pressure being applied to the client's skin. There are some systems on the market that do not have a pressure gauge and, believe it or not, there are even some without a vacuum pressure adjustment, just one setting for every treatment. These are critical features that have been eliminated to reduce the sales price. It's kind of like buying a car without a gas pedal or speedometer.

High speed (velocity) combined with particles that have sufficient weight (mass) will develop the power (kinetic energy) to sandblast the skin. The crystals need to be consistent in size and should not contain any dust since the dust will not perform an abrasion (dust has very little mass). Dust will also create clogging problems. The system needs to have the right amount of airflow with the proper size of accelerator to do an effective and even abrasion while the airflow combined with the appropriate tubing size allows for efficient removal of the waste without clogging issues. It is truly a balancing act because, as with the garden hose, if the accelerator opening is too large, the system will not have sufficient power, but as the accelerator opening is reduced, the beam of particles (water or crystals) is narrowed and will cover a much smaller area. A small accelerator opening equates to an aggressive abrasion that is too concentrated, will cause damage, and make it difficult to work with because it covers a tiny area. This condition will require you to make numerous passes in an attempt to deliver an even abrasion and will create a "hit or miss" situation. If the accelerator opening is extremely small, it will be impossible to measure and control the vacuum pressure in the cap and on the client's skin, which will cause damage in the form of ruptured capillaries. If the airflow is too low in the vacuum side of the system, it will have a tendency to clog very easily because the dirty crystals (crystals, skin debris and oil) will collect on the inside of the tubing and block the vacuum. There are so many ways to improperly design a microdermabrasion system that we can't cover all the possibilities here.

It is much easier (and more likely) to design an ineffective or bad machine than it is to design a good one. It is a technology that seems simple, but it is very complex. Anyone who tells you that all systems are the same, does not understand the technology. You must be knowledgeable of the product you are purchasing.

Abrasion and Vacuum. The abrasion is performed by means of a beam of micro particles (crystals) striking the skin at a high velocity, which removes a percentage of the stratum corneum (dead surface cells), causing underlying fresh skin to be exposed and start the generation of new cells. The vacuum draws blood into the dermis, increases circulation, causing fibroblast activity which results in the formation of collagen and elastin. **The misleading thing about some microdermabrasion systems** is that they can deliver a vacuum treatment but have little to no abrasion power and the vacuum treatment alone will produce moderate results. That may make a few clients think they are getting what they paid for, but many will be disappointed. This is where the informed equipment buyer can make a difference. The microdermabrasion system that can effectively and safely do both components, the abrasion and the vacuum, will provide the best or most optimum results. And if that system allows the operator to measure and record the settings and strength of the treatment, the operator can accurately replicate future treatments when the client returns. **These three factors, the abrasion pattern, the vacuum pressure control and the vacuum gauge, are the most important and should not be overlooked!** This combination will create a satisfied clientele who will continually return for services and, more importantly, provide referrals. That is the best kind of advertising because it is free!

Evaluating a system's abrasion qualities. First determine if the system can perform an effective abrasion. Passing the handset over the back of your hand may give you the sensation of a cat aggressively licking your skin, but you have no idea how much of the stratum corneum was removed unless you took samples and examined them under a microscope. The easiest (and also very accurate) way to measure a system's abrasion qualities is with the magazine test. Plac

e the handset on a magazine page of dark ink and see how much ink is removed. The white mark that is left on the magazine page indicates the shape and size of the abrasion pattern. Read the section on our site about How to Test a Microdermabrasion System. Remember that you are, first and foremost, charging your clients for an abrasion treatment. **If the system cannot remove the ink from a magazine, it cannot abrade skin.**

If the pattern is very faint, small or odd shaped, it cannot do an effective abrasion. You want to remove the dead skin cells to expose underlying cells over the complete area, not in a random manner. If the system you own is inconsistent or cannot perform an abrasion, you will not be able to deliver an effective treatment (what the client is paying for) and you will have a very difficult time building a repeat client base. Your customers may believe microdermabrasion, in general, doesn't work or, worse, they will believe you do not know what you are doing. If they can find another skin care professional who has an effective system, they may never come back to you for any type of service. Also, your time is money. If the system has a small abrasion pattern, you will spend so much time working to deliver an effective and complete treatment that the cost in crystals and your time will greatly erode profits. Your system should be able to deliver an effective abrasion in one pass of the handset, with slightly overlapping strokes. Making additional passes over any one area should be the exception, not the rule. Some manufacturers require four passes (one vertical, another horizontal and then diagonal passes going both directions) **over the same area** because they know their system's abrasion pattern is inferior.

Some manufacturers have multiple handsets to choose from. Make sure the handset you evaluate (with the magazine test) is the one you will be purchasing. F.Y.I. - Some manufacturers charge more for models based on the handset that is included. You may find there is little to no difference between the performance of each of the models and the only difference may be the handset (and they charge thousands more per model... for a \$100 handset?). Make sure you know what you are paying for and what you are actually getting.

Also, do not confuse power with lack of control. What appears on the magazine page when you perform the magazine test is what will happen on your client's skin. If a system's abrasion pattern burns a hole in the magazine page in a short period of time, that system can become a liability to your business (if you own such a system, make sure your insurance is current). The lack of control in many systems comes from the design in the handset, which produces a concentrated beam of the abrasive particles. This uneven distribution of the crystals creates an area in the abrasion pattern that is over-abraded and will result in skin damage; many handset designs make a pinhead size hole within the pattern on the magazine. The spot where the skin (or magazine) is over-abraded is referred to as a "hotspot". Find a system that, even at the highest setting possible, will remove the ink from the magazine in a large area without producing a hotspot (burning through the page). Even though you may never operate a system at the maximum setting, doing the magazine test at the highest setting will expose any system design flaws. You may come across a client that requires an aggressive treatment and, if you don't know that your system produces a hotspot at a higher setting, you could cause damage.

A large, even abrasion pattern that is similar to what an airbrush would produce is very important; one that fades near the edges, because you want to be able to slightly overlap the strokes to achieve an even abrasion. Keep in mind that, as you make each pass over the client's skin, you are removing more layers of the stratum corneum. If the abrasion pattern is solid right up to the margins of the handset cap opening, with no fading near the edges, you will remove too much skin in the areas where the strokes overlapped and none at all if you do not overlap. This is one of the main causes of striping (leaving stripes on the client's skin after the treatment). Just imagine what type of pattern is going to best deliver an abrasion without either removing too little or too much from any one place.

The design of the handset is the largest factor in the resulting abrasion pattern. A handset that delivers crystals at any angle other than 90-degrees will perform an uneven abrasion. It is a matter of physics. Additionally, if a system delivers crystals in a swirling or orbital pattern, it will have little to no abrasion power.

In evaluating the abrasion pattern and the manufacturer's recommended use of the handset, there are four rules to consider. 1) Size; a pattern the size of the tip of your little finger is about the smallest you should settle for, anything less is too small to work with, anything larger is a plus. 2) Evenness; it must not be odd shaped and cannot have hot spots. 3) Airbrush Pattern; a pattern that fades near the edges is much more workable than one that is solid to the edges. 4) One Pass Recommended Operation; one pass should be all that is required, if the manufacturer recommends that you always make more than one pass, they must be aware of their inferior abrasion pattern. 5) A 90-degree handset is far more effective than a 45-degree or other type of handset. **Do not settle for less in these areas!**

Evaluating a system's vacuum qualities. Vacuum is a very important part of the treatment but can also cause damage if the system is not designed properly. In **ALL** microdermabrasion systems, when you turn the machine power switch to "on", the vacuum motor starts drawing the air from all cavities of the system (i.e. the waste container, the tubing, the handset cap, etc.). However, the vacuum does not reach its maximum in any of those cavities until you cover the handset cap opening (application window) either with your finger or by putting it in contact with the client's skin. The instant you cover the application window, the motor starts to evacuate the remaining air from the cavities. It takes a full second for all cavities to reach the maximum vacuum (based on the setting and the system motor strength). When you, the operator, set the vacuum pressure on a microdermabrasion system, you do this with the idea that this is the amount of pressure you, as a skin expert, feel is appropriate for the treatment you intend on performing. But, unless you keep the handset on the client's skin for more than one full second, the system does not reach the vacuum pressure you have set. F.Y.I. - If you have a system that, when you cover the handset cap opening, the needle on the gauge will immediately jump up to the level you have set, you own a system that is incorrectly designed. (See "Does the gauge accurately reflect the pressure on the client's skin?" section below.)

If a microdermabrasion system manufacturer instructs you to perform a stroke with their handset like this: stroke, then lift, stroke, then lift, you should not buy the system for two reasons. 1) Unless you keep the handset in contact with the client's skin for at least one full second, the vacuum pressure is completely inconsistent, does not ever reach the level you have set, and you cannot possibly deliver an effective treatment that is consistent over the entire area you are abrading. 2) The manufacturer probably knows their design is flawed and is aware there is a possibility of causing damage to your client's skin if the handset is left on the skin for more than a couple seconds. The damage is caused by the fact that the opening where the crystals exit the handset, the accelerator, is too small.

Again, just imagine that the handset is like your garden hose: when you turn on the water and then cover the end of the hose with your finger or thumb, the smaller you make the opening where the water exits, the farther the water will spray and the more power it will have in terms of washing away the dirt from your driveway (or whatever you are spraying). The crystals will react in the same way. If the manufacturer utilizes a very small accelerator opening where the crystals exit the handset, the crystals will have more abrasion power. It is a fine line between having the correct size opening, making it safe to use and having a sufficient amount of abrasion power, or making it dangerous. Making it smaller will cause two problems: one problem is that it will create a hotspot in the abrasion pattern because the crystals will be heavily concentrated in the center of the beam of particles (see above for abrasion qualities) and the second problem is in regards to vacuum. As the vacuum pressure builds in the handset cap (and on the client's skin) the vacuum pulls the crystals out of the accelerator opening but, at the same time, it is also trying to draw air from that opening. If the accelerator opening is too small, the system cannot draw both crystals and enough air through the opening to balance the vacuum pressure, the pressure inside the handset cap will build to a dangerous level and may **rupture the client's capillaries!** Some manufacturers will actually tell you it will cause a "hickey" if left on the skin for more than one or two seconds.

Not only will a system such as that cause capillary damage, it will deliver an inconsistent abrasion. Crystals are driven by the vacuum pressure and the velocity of the crystal particles are determined by the air volume. That is a matter of physics. Again, just like your garden hose, when you have your finger over the end of the hose and you are attempting to spray something, if the water is just barely turned on (low water pressure and volume) the spray will not have as much cleaning power as when you have the water turned all the way up (full water pressure and volume). At a low vacuum pressure, the crystals will have a low velocity and deliver a slight abrasion, at a high vacuum pressure the crystals will have a higher velocity and deliver an aggressive abrasion. When you "stroke and lift", the system will be at a low pressure to start and, because the pressure in ALL systems will not instantly attain full vacuum, the pressure will continue building throughout the first second of the "stroke". By the end of the first stroke, the pressure will be at the setting you determined, but if you lift at that point, the pressure will fall back again. You will be abrading the skin in a totally inconsistent manner, never abrading the skin at the setting you, as a skin expert, had determined when you set the system's vacuum pressure at the start of the treatment. Using a "stroke and lift" method will make it virtually impossible to replicate your treatments.

NOTE: This is not meant to offend or put down any skin care professional that has been performing treatments with a "stroke and lift" method. You have to keep in mind that many of the systems currently on the market were not designed by an engineer but are copies of an existing design and were made by someone who does not understand the technology. Somewhere along the way, systems were improperly designed and were causing capillary damage so a non-technical person decided to adapt the operating technique **instead** of correcting the design. This "stroke and lift" technique has been passed down from one trainer to another until a majority of skin care professionals are under the impression that this is the only way it should be done. There are probably many experienced system operators thinking, as they read this, that Skin Business does not know what they are talking about. If you are one of those people, we hope you will take the time to finish reading this information. If you stop and think about this concept, you will have to agree that the "stroke and lift" method is extremely inconsistent. It is truly a matter of physics and cannot be disputed. However, don't change your method until you are **certain** your system will not cause capillary damage. If you find that your system is safe, you will see that this technique of keeping the handset on the skin will deliver much more effective results than the "stroke and lift" method. Again, only do this if you are positively sure your system is safe (keep reading this to learn how to properly test your system for vacuum safety).

Only purchase a system where the manufacturer instructs you to abrade a complete area (i.e. the forehead, or a cheek, etc.) while keeping the handset cap in contact with the client's skin, making passes back and forth **without lifting** the handset the whole time you are abrading that area. You will be applying a consistent vacuum pressure to the skin, which directly equates to a consistent abrasion. Not only will it enable you to deliver a consistent treatment it will not create a liability for your business. Do not believe any manufacturer if they say that all microdermabrasion systems will cause a "hickey" if left on the skin for more than one or two seconds. There are a number of systems that allow you to keep the handset on the skin for the complete treatment, without lifting at all. Those are the **ONLY** systems you should consider. **This is one of the most important factors and you should not overlook this for any reason.**

Pressure Gauge: Does the gauge accurately reflect the pressure on the client's skin? First of all, do not buy a system that does not have a pressure gauge. You are working with vacuum pressure and should be measuring that pressure with the tool designed for that purpose, a pressure gauge. A system that has lights or a digital readout indicating a percentage is telling you exactly what? Those items are electronic components and are connected electrically; essentially a switch is controlling the lights or readout and there is no true measurement of the actual vacuum pressure. (If there is a pressure gauge controlling those electronic components, why not display that gauge?)

Next, determine if the gauge is measuring the pressure being applied to the client's skin. The gauge must be connected in a way so that it only measures the pressure in the tubing leading to the handset and the pressure in the handset cap, **which correlates directly with the pressure being applied to the client's skin**. If you have that information, you can document it and use it as a future reference for that client's treatments.

However, if the system's gauge is measuring the pressure of the whole system, it is difficult to know what amount of pressure is being applied to the client's skin. As the system's waste container and waste filter begin to fill with skin debris, oil and dirty crystals, the vacuum pressure that is required to pull the air through the waste area increases while the vacuum pressure in the handset cap and the pressure on the client's skin decreases. If the gauge measures the vacuum pressure in the waste areas, you have no idea what level of pressure you are applying to your client's skin unless you keep the waste container and waste filter spotlessly clean. It is just like your vacuum cleaner at home: when the bag is full of dirt, the motor can be running but the vacuum cleaner cannot pick up any dirt. If the gauge is measuring the pressure in the waste container on your microdermabrasion system, you could have a high reading on the gauge with literally no pressure at all in the handset.

Many experienced microdermabrasion operators believe they can accurately set the vacuum pressure by passing the handset over the back of their hand and "feeling" the pressure. It would be safe to say that there are very few people who can set a system's vacuum pressure and then consistently MATCH that vacuum pressure using this method when asked to perform this feat once or twice within a minute or two. There is NO ONE that can set a system's pressure to the exact, same setting two weeks later by using this method (your clients will be coming once every 10 to 14 days for treatments). It is physically impossible and would be a matter of sheer luck if any settings would be consistent. Why have any guesswork involved in your profession if you can choose not to?

There are two easy ways to determine how a system is constructed in terms of the pressure gauge. The first is a visual check; if the handset is connected directly to the waste container, it is wrong. The next way is to look at the needle on the pressure gauge; if, when you cover the opening on the handset cap, the needle on the gauge immediately jumps up to the pressure reading you have set, it is wrong. The only way a gauge can obtain a pressure reading that quickly is if there is very little air volume for the vacuum motor to evacuate (i.e. there is only a short tube leading from the vacuum gauge to the vacuum motor and there are no major cavities, such as a waste container, between the motor and the gauge). There is a final way to get 100% confirmation on if the system is properly designed: disconnect the waste container, turn the system on and plug the air intake where the waste container was attached. If the needle on the gauge moves, the gauge is measuring the pressure in the waste container, which is wrong. Do not buy that system unless you either plan on changing the waste filter and emptying the waste container after **every** treatment, or you are not concerned about the quality and level of service you provide to your clients.

If, when you perform this last test, the needle on the gauge does not move, reconnect the waste container and then disconnect the handset tubing, turn the system on and plug the opening where the handset was attached. The needle should move, indicating that the gauge is measuring the pressure in the handset tubing and handset cap, **which is what you want. This is one of the features that your system must have in order for you to have a chance at being successful in this business!**

Does the system clog and how much maintenance and cleaning is required? Many of the systems available on the current market clog on a regular basis and require almost daily maintenance. The majority of the systems available just 4 to 5 years ago were very hard to work with because of this problem. Contact the manufacturer and get the cleaning and maintenance requirement in writing. Some manufacturers say that clogging is an operator issue (they will say the system is not maintained properly) so the manufacturer charges for clogging repairs even

though the system is still under warranty. Make sure you know what is considered to be your responsibility before you buy. At a minimum, the operator/owner pays for the shipping to and from the manufacturer, which can be hundreds of dollars and take from one week to one month to repair (a long time to be without your source of income). There are now systems available that rarely or never clog and require very little maintenance. Make sure the system you purchase does not clog, and if possible, get the promise of a no clog performance in writing. If a system does not require any regular cleaning procedures and still will not clog, that is ideal. Also try to find a system that requires maintenance only on a monthly or, better yet, quarterly basis and determine what are the items and costs associated with that maintenance schedule. Make sure you are not required to clean the waste filters, just dispose of them and replace them. Normally, cleaning a waste filter involves blasting the dirty filter with compressed air, sending millions of contaminated particles into the surrounding environment. Cleaning a waste filter in that manner exposes you, and anyone coming into that area, to numerous and unnecessary health risks.

Low or Maintenance-Free Claims Be aware that there is no way any microdermabrasion system can be maintenance free. The system performs a sandblasting treatment on skin. This means there will be crystals, skin particles and oil residue being vacuumed into the waste area. If these particles, especially the crystals, get into the motor, the motor will seize up within minutes. Crystals are very abrasive so there has to be a filter that collects the waste particles and stops them from getting past the waste container and into the motor. **Every machine has a filter to perform this function.** Over time, this filter will get completely covered and will restrict the vacuum pressure to the point where there will be no power remaining in the handset to perform the treatment. And, depending on the design, this filter will be clogged in as few as one or two treatments. This means that you, the operator, are required to clean or replace this filter as needed. The only systems that don't require the operator to perform this procedure are the systems that have a disposable waste container because this type of container has the filter built in and it is thrown away with the waste. If a manufacturer claims their system is maintenance free and they do not have a disposable waste container, they must have their own definitions of the word "maintenance" and what they consider to be "operating procedures". They are trying to mislead you. Cleaning the filter is maintenance: It is something that has to be done in order for the system to operate. Also, unless you clean the filter with some type of solvent, the oil will build up over time, block the vacuum pressure and negatively effect the treatment. This cannot be avoided. That means you are slowly degrading the effectiveness of your treatments when you continually clean a filter instead of installing a new one. Which is not a great concern if the system is properly designed and the gauge accurately measures the treatment pressure. The problem is, in almost every system on the market, the system's pressure gauge is not connected correctly and you will have no idea you are delivering a sub-standard treatment (see the section in this information titled "Pressure Gauge"). Avoid any company that claims their system is maintenance free. It is just part of a sales pitch that is filled with false information. Also avoid any system that requires you to clean the waste filter instead of replacing it unless you can clean the filter with a solvent to remove the oil.

Recommendations by other Skin Care Professionals. When asking for recommendations from experienced skin care professionals who own microdermabrasion systems, make sure they know as much as you do about how a system should work. You may discover that they are completely unaware of their system's inability to produce even an abrasion. Have them give you a treatment, pay attention to everything they do, ask questions and test their system. When discussing cleaning and maintenance, find out what is required to achieve clog free operation of the system they recommend. Remember that someone who has been in the business for any length of time may have the opinion every microdermabrasion system has clogging, cleaning and maintenance issues and may not think it is important to tell you what is involved. Keep in mind that some people defend their purchase because they don't like to admit they made a mistake. They may not know they made a mistake. Doctors are, for the most part, very intelligent individuals, but they can make mistakes too. They may have bought their system based only on a recommendation and may have never even used it (they may have an aesthetician or technician who operates it). Also, a recommendation by another individual may be driven by

other factors, such as referral fees or other incentives. If it is someone you know and trust, it will carry more weight. Even though a system is highly recommended, you must do your own evaluation. After reading **all** this information, you can have the confidence that you know as much or more than the majority of skin care professionals about how to evaluate a microdermabrasion system. You may just lack the actual experience. Trust yourself. Don't base your decision solely on a recommendation.

Will the Microdermabrader operate with different types of abrasive "crystal" product? At the present time Corundum (Aluminum Oxide, Alumina) is the most widely used and most abrasive material for microdermabrasion procedures. There are four reasons why corundum is used primarily throughout the dermabrasion industry. 1) The product is widely available (it is a naturally occurring crystal and very abundant in the earth's surface); 2) it is an inert crystal and non-toxic; 3) it is the second hardest crystal (after diamonds) and since it is a crystal it has multiple sharp edges for abrasive contact; and 4) the crystal of corundum is impervious to moisture (does not absorb liquid).

The two other materials that are also predominately used in microdermabrasion procedures are Sodium Bicarbonate (Baking Soda) and Salt. Both of these materials are of a crystal structure and both work quite well as the abrasive material. Neither of these materials is as hard as corundum nor do the materials have the mass (weight per particle) of corundum. Therefore, neither material will have the abrasive power of corundum because of the softer edges of the crystal and the lower kinetic energy per particle. An advantage to using either of these types is in the case of abrading into a fluid area; the crystal particles will dissolve in a very short period of time. Physicians primarily use Sodium Bicarbonate for scar revision microdermabrasion procedures.

How should you evaluate the cost of crystals and operating costs? Many skin care professionals believe that one of the biggest factors in evaluating the purchase of a system is the cost of the crystals and supplies. Before you can make an educated decision regarding this point, you need to first focus on a system's performance in relation to the consumption of crystals. Many systems use a large amount of crystal per treatment; even buying the least expensive crystal available will still leave you with a high per treatment cost if you own such a system. And that system will not deliver an effective abrasion. Remember that you are attempting to "sandblast" the skin and the only way to efficiently achieve that goal is for the incoming crystals to have an unimpeded path to the skin. Only the crystals that are directly striking the skin will cause an abrasion. Any crystal that is colliding with another crystal will not abrade the skin. If your system produces a large amount of crystals lying on the skin, or swirling about in the handset cap, you will not provide much of an abrasion.

Next, you need to consider this: contrary to the claims of many crystal suppliers in the market and on the internet, there is a difference between one grade of crystal and another. If you buy crystals that are properly sized and sifted to remove the dust particles, your system will perform at a higher level for a longer period of time and you will deliver consistent treatments (as opposed to using lower grade supplies). The low grade crystals are not sized to within a reasonable tolerance: many low grade crystals may claim to be 100 microns but are actually between 50 and 150 microns in size. Inconsistent size of crystals will deliver an inconsistent treatment. These crystals also include a lot of dust. Dust will not do any abrasion at all: only particles of sufficient mass can generate the kinetic energy to perform an abrasion. Dust will also create performance problems in your system and is a prime source of clogging issues. The dust will accumulate with small oil and skin particles and then attach itself to internal surfaces of the machine (much like plaque will collect on blood vessel walls) and eventually clog the system. Also, dust particles can become airborne and possibly contaminate the area, whereas properly sized particles are too heavy, cannot float in the air, and will fall to the floor.

Low-grade crystals in connection with a poorly designed machine cause many of the clogging problems currently faced by system operators/owners. The use of those crystals in a poorly designed system will also result in a large amount of time spent on cleaning. Do not forget to consider the cost of your time when shopping for a system and a crystal supplier. There are also the maintenance costs (filters and other replacement parts) to consider and, again, your time spent performing those duties. A low cost crystal is no guarantee that you will have a low per treatment cost. If your system uses too much crystal per treatment, requires you to spend time cleaning it at least once a week (some have to be cleaned every day, some after every treatment), and you spend a fair amount of money on replacement parts for the maintenance of the system, you could have a very high per treatment cost.

The point of this section is: Do not just focus on the cost per pound of crystals. It is far more important to know the **total** cost per treatment. If you can buy a system that uses a conservative amount of crystals per treatment and doesn't require constant cleaning and maintenance, you can afford to use a higher grade of supplies, which will give you a reasonable cost per treatment and will create fewer problems for you in the long run.

"Natural" Material or "Non-Crystal" Microdermabraders Don't be sold by a sales pitch that is based on false information. First of all, corundum is not dangerous, as some of the companies who sell these types of systems will falsely claim. (see the next topic on the safety of corundum) Those companies will also say that crystals "get everywhere" during a treatment. That is usually the case with two motor systems (one for the vacuum and one for driving the crystals) and poorly designed single motor units. Many systems available on the market today do not have this problem.

There is no material available that is as effective as corundum, but you should choose a system that can use any type of abrasive crystal. If you feel you need to be offering a "natural" material (corundum is about as natural as possible), baking soda or salt will suffice. Remember that some clients may be allergic to nuts and that may include shells and husks, which are what some of the "natural" systems utilize.

The "non-crystal" approach is old technology dermabrasion presented in a new way. You are performing a manual scrubbing of the skin by means of a tool that has an abrasive material, similar to sandpaper, affixed to it. Cleaning all the skin particles and debris from the crevices in the abrasive material at the end of the handset is almost nearly impossible. You probably wouldn't want to use a device on yourself that has the previous client's skin particles embedded in it. Also, the amount of pressure you apply to the skin greatly affects the treatment outcome. Abrading an area that is backed by a bone structure may dangerously increase the abrasion and may cause fine cuts in the skin. Training and technique is extremely critical. Look for a non-crystal system that cannot be affected by the operator applying pressure to the skin with the handset. The simple test for this evaluation point is, if you can perform an abrasion of the skin with the machine turned off, do not buy that system. The individual that is operating the system is not as precise as a machine and is not able to distinguish between a little pressure and slightly more pressure (being applied to the skin). Delivering an inconsistent or possibly damaging treatment is highly likely. Only purchase a system that completely controls the abrasion treatment and one that cannot perform an abrasion unless the system is turned on. Also, "Microdermabrasion" is defined as an abrasion of the skin performed by the application of a direct beam of abrasive micro particles. If you purchase a system that only operates in a non-crystal mode, you should not be promoting and advertising your services as microdermabrasion because that system performs a dermabrasion treatment. If you are evaluating a non-crystal system, have the manufacturer state whether that system is considered to be a microdermabrasion or dermabrasion system before you buy it. Get it in writing. How are you allowed to advertise and promote this service? Get that in writing too. The FDA does not look kindly on manufacturers and skin care professionals who make false promises or claims to the general public. Correctly promoting the non-crystal services as a dermabrasion treatment may greatly reduce your potential clientele and may limit your income. The vast majority of the people who regularly

purchase skin treatments are familiar with the term "microdermabrasion"; that is your customer base. Why limit your potential? There are systems that perform both non-crystal and crystal treatments. Buying a system that only performs a non-crystal treatment will limit you and your client's options.

Is Corundum (Aluminum Oxide) Safe to Use? Corundum (Aluminum Oxide) is not an unsafe material, as some will lead you to believe; in fact, it is the only FDA approved abrasive for microdermabrasion. Corundum is an inert, naturally occurring substance and is a crystal, not a metal. Corundum has never been linked to **any** medical condition in **any** study performed by **any** of the research laboratories, not just in the U.S. but also in Europe. The health concerns come from inferior crystal media that is not properly sized because they will contain fine powdery dust, smaller than 20 microns, that when emptied into wastebaskets or purged from clogged systems, can create a small amount of airborne contaminants and could be irritating to both client and technician. A good quality microdermabrader, with proper design that utilizes quality, pure, properly sized corundum crystals will not clog and, if it utilizes a disposable waste container, will not emit airborne particles. As a point of fact, the material used in dentistry to polish the teeth after cleaning is a fine corundum abrasive, mixed with a pleasant tasting paste, and is approved by the FDA for that procedure.

Is the device FDA Approved? Microdermabraders are all considered a Class I Medical Device and do not need to be individually FDA approved. The FDA has approved the microdermabrasion procedure, not individual units. There are currently approximately thirty-two different companies that manufacture microdermabraders, and of the thirty-two, only about five of these companies are currently registered with the FDA as manufacturers of microdermabraders. Any company who is serious about staying in this business will be registered with the FDA and follow all of the guidelines required to track and control the quality and functionality of each unit. You take your skin care business seriously; your equipment manufacturer should be making the same type of commitment.

"Medical Grade" Systems. Many physicians have the opinion they should only be evaluating and purchasing microdermabrasion systems that are classified as "medical grade". However, they must be aware that no agency or organization, including the FDA, has anything to do with this classification. All "medical grade" systems are designated, and marketed, as such by the system manufacturers themselves. Target marketing to a specific group, with a large portion of that group convinced they need a system with that classification, allows for a higher sales price. In many cases, it is strictly a marketing tool and very misleading.

Many of the medical grade systems currently on the market lack basic features that probably would be required to qualify the system as a medical device (if there were such regulations put in place by the FDA). A microdermabrasion system that is intended to be used for medical treatments (such as scar revision) must be properly designed and equipped to safely penetrate in to fluid areas if necessary. The suggested minimum requirements would be:

- 1) An air intake filter system that will eliminate all possible contaminants from entering the clean crystals and air stream, which may be making contact with an open wound. Any system that cannot operate under high humidity or moisture does not meet this requirement (some "medical" systems cannot be operated in the same room as a steam machine because it cannot filter out the water molecules... can it filter out viral molecules?). If you can't operate your steamer near the microdermabrasion system, don't buy it.
- 2) The capability to handle tissue that is moist or wet. Any system that requires the operator to thoroughly dry the area to be abraded before the treatment (or it may clog) is not able to handle any fluids so therefore cannot handle blood or other fluids that may be involved in a scar revision treatment.
- 3) Disposable or autoclavable handset and handset tips.
- 4) Sealed and disposable waste container. Since blood may be a part of the waste, it is a biohazard and should be treated as such (some systems require the operator to pour the waste

crystals from the waste container into a trashcan or other waste receptacle, the dust that is generated in this process is a biohazard).

5) Disposable waste filters (some systems require that the operator clean the waste filter on a regular or daily basis by removing the filter and blasting it with compressed air, which creates a potential biohazard for more than just the immediate area).

Many of the "medical grade" systems cannot be operated at or even near their highest settings. The manufacturers of those systems will claim power is the reason for the classification. That is partially true. Owners of those systems must be aware of it's potential to cause damage and make sure their operators have the proper training and background (and their insurance is current). The whole truth is, not only does it have an excessive amount of power, there is almost a total lack of control. The operator cannot properly control the system's abrasion and/or vacuum qualities, which is multiplied when performing medical level treatments. The majority of these systems have an abrasion pattern so concentrated the system will produce a hole penetrating up to 5 magazine pages within 2 seconds. If the abrasion pattern were large and even, this would be an amazing machine. The problem is, some of the systems with such concentrated abrasion patterns produce a piercing hole that is not much bigger than the size of a pinhead. That type of abrasion pattern can only cause damage, with no medical benefit whatsoever. In addition to a small abrasion pattern, many "medical grade" systems have a problem with vacuum pressure control. At higher settings, these systems will allow the vacuum pressure to build in the handset cap and on the patient's skin to the point where capillaries are ruptured.

Since the classification of a system as a medical grade device is determined by the manufacturer, a potential buyer must do their own research to confirm whether a system has the qualifications to safely and effectively perform a medical treatment. Do not assume that any system will be more effective than another just because of its classification. You will find that many of the "medical grade" systems will not meet even obvious minimum requirements and some "aesthetic" models will pleasantly surprise you (and your budget).

Does it have the proper filters? This is a concern for all operators of the system, from aestheticians to physicians. If the manufacturer recommends that you do not operate their system near or in the same room as a steam machine or a wax machine, **do not buy that system**. That recommendation by the manufacturer indicates they do not have a filter that can remove the moisture or wax molecules from the incoming air. The results will be clumping of crystals and clogging of the system. The first reason to avoid such a system is that it clogs too easily. At the least, you are limited in where you can operate the system or what other equipment can occupy the same room.

At worst, if you are a physician and break into a fluid area, you may be introducing possible viral contaminants. You have to consider the fact that water molecules are much larger than viral molecules so a system that cannot filter out moisture is useless (or a liability) in a medical situation. The possibility of cross contamination is extremely high. With a flawed system such as this, the operator would be driving dirty air and crystals onto the surface of freshly abraded skin. In the case of a physician performing a scar revision treatment (and the possible situation of an aesthetician inadvertently abrading an acne breakout area), the operator would be introducing contaminants into an open wound. A system that does not have the proper filtering to control moisture intake should never be used in any type of medical microdermabrasion treatment and should not be classified as a "medical" unit. Any serious medical system manufacturer could easily make the changes and install the proper filters. The parameters for an incoming air filter on a microdermabrasion system should be less than .1 microns (there is a new study being conducted with preliminary information indicating some viral molecules may be as small as .06 microns). There are systems that have filters as fine as .01 microns.

Do you have to completely dry the area before abrading? If the manufacturer recommends that you completely dry the area you plan on abrading, you need to consider this information. This may not be of great concern to an aesthetician because drying of the skin is just one more

step and the manufacturer recommends this because the extra moisture may cause the system to clog. (Although, that is a major flaw and the possibilities should be of great concern to the buyer; the system clogs.) But this is **not acceptable for a physician**. The physician may be performing treatments that reach into the fluid barrier and, if a system cannot handle moisture, that system is useless. A physician may, on occasion, have clients that require more than just a superficial treatment and the system must be able to handle moisture; whether that is blood or other fluids.

"Diamond" crystals or "Diamond Shaped" crystals Diamond crystals would be very expensive and wouldn't add any benefit to a treatment as compared to corundum crystals. If the crystals were truly diamond particles, you could not possibly afford to buy them and compete in the microdermabrasion treatment marketplace. As for "Diamond shaped" crystals, corundum crystals are faceted just like diamonds because both corundum and diamonds are a form of crystal. If anyone tells you they are specially shaped, you should not believe them (or trust them): next time you examine corundum crystals, ask yourself how difficult it would be (and what specialized and expensive equipment would be required) to precisely shape those tiny particles. And this precise procedure is done on billions of these particles? All crystals are crushed by machinery in a random manner and then sorted by size. There are no specially made, "diamond shaped" crystals: they are just corundum crystals promoted in a way to sound unique. Beware of companies that try to sell their products based on false information.

Lifetime Warranties There are many options out there in terms of warranties. Some system manufacturers warranty their machines for 1 year but most provide at least a 2-year warranty. There are a few that offer options to purchase extended warranties when the original warranty expires. The life expectancy of any system is based on the vacuum motor inside the microdermabrasion system and the motor manufacturer's MTBF claims (Mean Time Before Failure). Every motor is rated to operate for so many hours before it will fail, which the manufacturer specifies as the MTBF. Regardless of what the motor MTBF specifications are it is a mechanical device with moving parts and it will eventually wear out. There are limits to what a manufacturer can promise, within reason, when they are selling a mechanical device. Any microdermabrasion system manufacturer who offers a lifetime warranty is doing it to increase sales now, and will worry about the consequences later. It is a marketing plan with the intent of diverting your attention from what really matters: the machine's effectiveness and performance. There is no possible way for any company, regardless of their financial strength, to sell a mechanical device under a lifetime warranty and budget for the day when those systems start to fail. They may be able to pay for the repairs of some of the first systems that fail but, as more systems fail the major shareholders and/or owners will not want to continually dip into their pockets to cover this cost. They will choose to close the company instead. And, if the design is not tried and tested, the failures may start happening very early on and the company will fold sooner, rather than later. The true test of whether you should consider the length of the warranty to be a major factor when choosing one machine over another is to determine how long each company has been in existence. Do not judge a company on how long they claim to have been designing and working on their system, but how long has the company been selling their design and how long has that design has been on the market, under real-world conditions. Get a list of referrals and find out how long they have owned their system. What value is any warranty if the manufacturer does not stay in business long enough to support it? Also, if that same company makes other impossible claims, (like maintenance free) you must use caution when dealing with them. Make sure any system you are evaluating has a sound design and is effective before you weigh such factors as the warranty.

Trade In and Buy-Back Policies Most manufacturers offer some type of trade in policy if you wish to upgrade your system during the life of the warranty. Some offer a small percentage, very few offer a major percentage and fewer yet offer a 100% trade in policy. Rarely does a company offer any type of buy-back policy; most manufacturers will not offer to buy your system back from you at any price unless you are buying a new machine from them. It sounds logical since that would mean they make less money on the sale of the used machine where they could have sold

a new one and made a higher profit. They are looking out for their bottom line, not their customers needs. Find out if the company you are considering offers any type of trade in and buy back policy. This will tell you how confident they are in their design and how much they value their customers. If they offer a high trade in value and/or will assist you in re-selling your used system to one of their new customers, they are a company that knows their design is reliable and trouble free and they also really care about their customers.

The look of the system and marketing materials. A pretty colored system may fit well in the overall look of your spa, but remember that your clients may only see it when they walk in and out of your room. They will either have their eyes closed or covered during the majority of the time they are with you. Also, very few individuals outside of the skin care profession are familiar with either a company name or logo. And lastly, having a complete marketing plan with 4-color brochures and other collateral is good, but this should be one of the last items to check off your list. These items **should not** be a determining factor. **None of these features will turn a first time customer into a repeat customer.** A customer may be impressed with the beautiful look of your system, the slick look of your marketing brochures and the cute logo in the beginning, but will stop coming if they don't get results. Your best source of advertising will be satisfied customers who have a noticeable improvement of their skin. They are your walking and talking billboards. Friends, family and maybe even strangers will ask them what they did to their skin and your customer will be more than happy to tell those people all about you and your wonderful machine. Customers won't remember what your machine or its logo looked like or what brand it is. They may come to your business because of the brochures, but if the system doesn't deliver, they will not come back. Remember that every customer is a potential source of advertising but, based on the customer's experience with inferior services, it may not be positive. That is not the kind of advertising any business can live with.

Attention Physicians and Salon/Spa Owners: Referral Fees can be a Concern. Many manufacturers offer a referral fee for leads that result in the sale of their equipment. This is a common practice and has the potential to generate sales for the organization. It also has the potential to be abused. Many sales people in the medical equipment business are actually distributors and own the products they are selling. They purchase the items from the manufacturer at a great discount off of list price, sell the item at or around list and profit the difference. For example: an equipment manufacturer lists their systems at just under \$10,000 and sells it to their distributors for \$4,500. The distributor is encouraged to use a portion of that large profit margin to ensure the sale. There is a possibility that a referral fee is substantial (\$1,000 to \$2,000 **per system sold**) and has the power to cloud someone's judgment. The purchaser may not need to worry about this if the person generating the lead and being paid the referral fee is an outside individual. Regardless, this is a concern if the physician or salon/spa owner is not involved, at some level, in the evaluation of the system. The actual purchaser should be familiar with the equipment and be certain it will produce acceptable results based on their own investigation and determination of what features are important.