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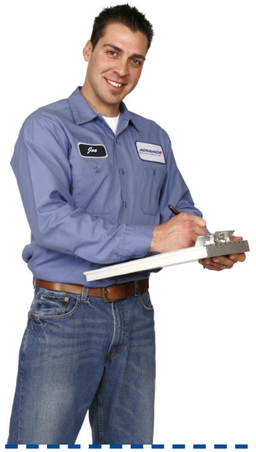

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Chris Lamy, Owner

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ADVANCE AIR & HEAT COMPANY INC.

Spring Newsletter 2015

Ice, Ice Everywhere and None to Put in Your Drink

As I look back on one of the snowiest and iciest winters in memory, I can't help but think about ice. Icy roads, ice dams, ice that required DAYS scraping to get off of the parking lot. It all started off as pristine fluffy white snow. We made snowmen, snow angels, some even made homemade slushies or ice cream. (Have you seen this snow ice cream thing? I love the idea, but have never tried it.) Within just a few short days, that pristine white fluff turns into dirty, grey frozen ick that no one would want to eat, or even touch.

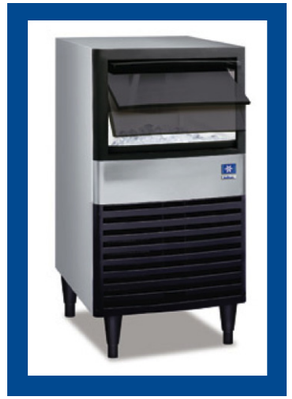
It makes me think about ice machines. Because it's a similar story. A new ice machine starts off all clean and sparkly, but before you know it, it's full of ick just like that nasty stuff on the side of the road a few days after a blizzard. We've all heard the horror stories, right? Restaurants who NEVER and I mean, NEVER clean their ice machines, putting their filthy bacteria and slime-laden ice into what used to be your delicious cold beverage. ICK. Just, ick. Don't be that restaurant. Because no one wants dirty ice in their drink.

Normally I'm not much of a germophobe, but there's something about the idea of slimy ice that gives me the willies. I think the assumption most people make is that since ice is frozen, it's automatically clean. Once you've seen the insides of a few neglected ice machines, you might change your tune.

Did you know that the industry-recommended standard for ice machine maintenance is once per month? Although for some ice-users, monthly sanitation may seem a bit obsessive-compulsive, it is a good idea to put your ice machine on a regular maintenance schedule. Depending upon water quality, environment, and usage, twice yearly or quarterly maintenance is a good bet.

Ice machines have two main enemies: mineral build-up and contamination by bacteria or other contaminates. Preventative maintenance helps keep these issues under control and your ice clean and healthy.

Mineral Build-up (Scale): Ice machines use potable water, which is clean and safe for drinking, but it contains minerals that constantly leach out during the ice making process. These minerals build up on the mechanisms of the ice machine, slowing the ice-making process. This means your machine has to work longer to make the same amount of ice. This wastes electricity and causes more wear and tear on your machine. Eventually, the build-up will cause the machine to stop producing ice altogether. Twice per year maintenance is recommended to keep mineral build-up down to a manageable level.



Bacterial or Other Contamination: The other – and even more icky – ice machine enemy is contamination by bacteria, airborne particulates like dust or pollen, and general human contact. These contaminants can cause an unsanitary environment in your ice machine, sometimes causing slime or other unpleasant ice conditions.

When the ice clinks in your frosty glass, you don't want to think about hordes of bacterium swimming for their lives in your beverage. So, for the sake of all who partake of your ice, please clean and disinfect your ice machine regularly. And if you don't, can you let me know who you are, so I can avoid ice from your establishment?

What's Inside:

Advance Air & Heat, Inc
177 Bullock Road
E. Freetown, MA 02717
508-763-3738
www.advanceair.net

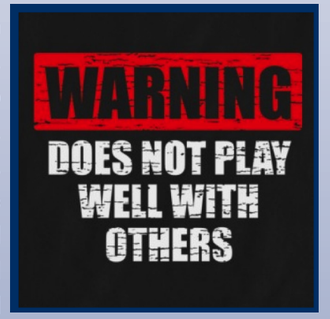
The Good, The Bad and The Ozone-Depleting – R-22 Refrigerant Outlaw

You hear the spurs clinking as the Outlaw R-22 kicks open the swinging doors of the saloon in the hit new Western, "The Good, The Bad and the Ozone-Depleting." Wyatt Earp is played by the EPA, ready to shoot down R-22 in his tracks...

The real story of R-22 (and it's outlaw status) is told in the Montreal Protocol – which sounds like a cool movie, but definitely isn't. The Monteal Protocol lays out a schedule for stopping production of R-22 completely by 2020. Wait, What?!? No more R-22? Should we freak out and run screaming for the hills? Nah, no need to panic yet. You need to be aware of the R-22 situation to make smart choices, but I like to think of R-22 as one of those dashingly handsome outlaws who inadvertently causes trouble but deep down is just really misunderstood.

So here's what you need to know. There are two big questions that keep coming up... Should I remove the R-22 from my existing HVAC-R unit and switch to an alternative refrigerant? And what should I do if my R-22 unit dies? So here goes...

Should I remove R-22 from my existing HVAC-R unit and switch to a replacement refrigerant?



There are several "direct replacement" refrigerants available. I use quotes when I write this because I think the term "direct replacement" is a little misleading. Almost all of the supposed "direct replacement" options require "tweaks" to make them work, like changing refrigerant oils or removing pressure controls. Some replacement refrigerants can cause a reduction in cooling capacity. There are different versions for comfort cooling (regular AC) vs. medium temp refrigeration (cooler/refrigerator) and they can't be used interchangeably. And perhaps most importantly, you need to know that refrigerants do not play well with others. When doing a changeover, it is IMPERATIVE that none of the old refrigerant stays in the system. If it's not removed completely, the system simply won't work correctly and the only way to fix it is to remove all of the contaminated refrigerant and start again. No one wants that. So, long story short, IF you have a really good reason to change refrigerants, you need to make sure your contractor knows what they're doing.

So what's a good reason to change refrigerants? Well, right now, I'm not sure there is one. At this point, R-22 and the direct replacements are still fairly close in price. If your R-22 system is running fine with no leaks and no problems, I can't see any reason to do anything at all. (YAY! Permission to do nothing! How often do you get that?) As long as it stays inside your system, R-22 can't do any damage to the ozone layer and it isn't costing you a thing. This brings up another related point...you should NOT need to "top off" your system annually. In fact, you should NEVER have to top off your system. A refrigeration system is a closed system, meaning it just keeps recirculating the same refrigerant. It doesn't leave the system, it just goes round and round doing its thing. If your system needs "topping off", it has a leak. And the leak should be repaired ASAP per the orders of Wyatt "EPA" Earp.

R-22 production continues to be reduced every year, so perhaps someday there might be a good reason to change refrigerants in your system, but for now, I think it still falls under the "If it ain't broke..." philosophy.

What do I do if my R-22 unit dies?

R-22 units are still being made. Clever manufacturers are skirting the ban by selling the R-22 units dry, meaning without R-22 in them. Because of the uncertain future of R-22, new R-22 units are typically only purchased in a situation where a customer has a fully functional R-22 air handler, but the R-22 condenser has died. So rather than replacing the whole system, they buy just an R-22 condenser. This is especially common when the air handler is difficult to access. Replacing half the system saves money, obviously, but it is a judgment call on whether biting the bullet now and replacing the whole system is a better option.

Purchasing a unit is a long-term investment, lasting 15-plus years, far beyond the date when R-22 is expected to be completely phased out of production. The most common new refrigerant for AC units is R-410A refrigerant. R-410A is more environmentally friendly than R-22 and no one has outlawed it yet, so it should stay readily available and reasonably priced for the foreseeable future. R-410A is not a substitute for R-22. The new units that use it are specially made to work with R-410A's higher pressures and slightly lower cooling capacity – this is why replacing an R-22 condenser with an R-410A one is unfortunately not a good option. If you need to purchase a new unit anyway, and it is easible logistically and financially, I'd recommend purchasing a whole new unit (evaporator and condenser) with 410A or one of the other new refrigerants.

At some point, R-22 will be fully outlawed (right now it is scheduled for 2020, but who knows?) and the only R-22 available after that will be that which is recovered and reclaimed (cleaned) from old units that have been taken out of operation. Once that happens, prices will climb extremely high due to shortages and processing costs.

Does that mean we should all run around ripping out all of our R-22 units? Nope. Nor does it mean that you should immediately remove all of the R-22 from your perfectly healthy units and replace it with an R-22 substitute. It does mean that you should tread carefully around that crazy old outlaw R-22, especially when making long-term investment decisions. At some point, R-22 will ride off into the sunset and you need to make sure he doesn't take your train-load of gold with him.

Celebrating One Year of "Confessions of an HVAC Chick"

One year ago today, the first installment of the Confessions of an HVAC Chick blog series was posted on www.advanceair.net. HVAC Chick is a weekly blog written in plain English about everything you'd ever want to know about HVAC as well as funny stories about technician's battling the scourges of nature (angry seagulls, bees and even raccoons) and more! It's been fun to write and even more fun to read the feedback on social media. Join us in the discussion on Facebook, Twitter, Google+, or sign up for weekly installments via email.