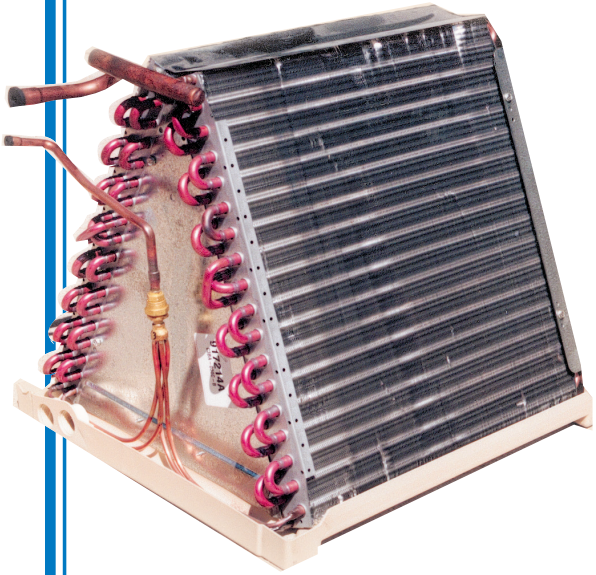


# CLEAN COIL™ PROGRAM



***There are many good reasons  
to clean coils!***

***And, here is what the Nu-Calgon  
Clean Coil & IAQ Assurance  
Program can do for you...***

- ✓ Gain significant savings on energy costs.
- ✓ Maintain peak operating efficiency.
- ✓ Enhance the cooling system's reliability and service life.
- ✓ Prevent costly breakdowns.
- ✓ Improve Indoor Air Quality (IAQ).
- ✓ Backed by Nu-Calgon, the leader in HVAC and Refrigeration maintenance chemicals for more than 60 years.



# NU-CALGON CLEAN COIL & IAQ ASSURANCE PROGRAM FOR AIR CONDITIONING, REFRIGERATION SYSTEMS

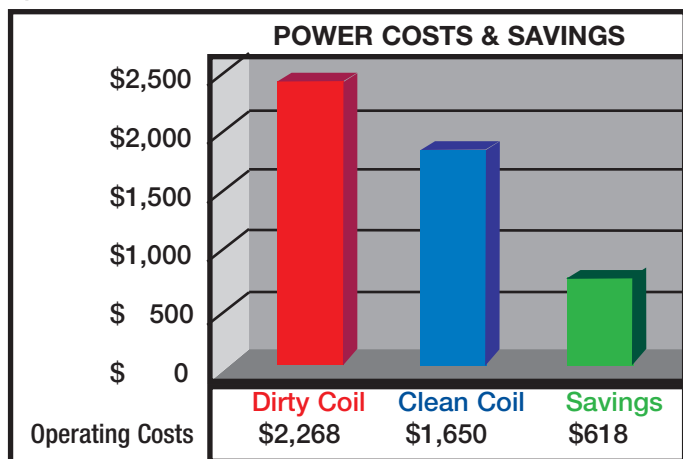
Over the last 50 years, Nu-Calgon has developed products that have proven themselves in the successful cleaning and protection of air conditioning and refrigeration equipment. Now, these products have been further developed into a program that will keep this equipment operating efficiently and effectively, thereby cutting electric bills, increasing the equipment's service life, and improving the comfort and Indoor Air Quality of the building or home.

An air conditioning or refrigeration system has two "finned" coils, and typically they are constructed of copper tube and aluminum fins. The evaporator coil is the indoor coil, usually referred to as the "A" coil in residential systems. It could be described as "cold" as it provides indoor cooling by absorbing the heat as a fan passes the building air over it. The condenser coil or outdoor coil is the coil that is "warm" as it rejects the heat as a fan blows outdoor air across it. These coils are sized to match the Btu cooling load or requirement of the home or building, and they are engineered for maximum heat transfer . . . a process that is based upon clean coils. But, because the air moving across these coils usually contains dust, dirt, pollen, moisture, etc., the coils will get dirty. In addition, the evaporator or indoor coil as well as the condensate pan can become fouled with pollen, bacteria, mold spores, etc., and this will reduce the quality of the air within the home or building. The result of this is more costly and damaging than you would suspect.

## DIRTY CONDENSER COILS CAUSE PROBLEMS:

**Dirty Condenser Coils Increase Power Costs.** When the coil becomes fouled with dirt and grime, it cannot provide complete or adequate heat transfer, a process that was predicated on a clean coil! The equipment's compressor senses this, and tries to overcome it by going to a higher system pressure. This consumes greater levels of electricity. For example, a dirty coil could easily consume up to 37% more electricity as compared to a clean coil.

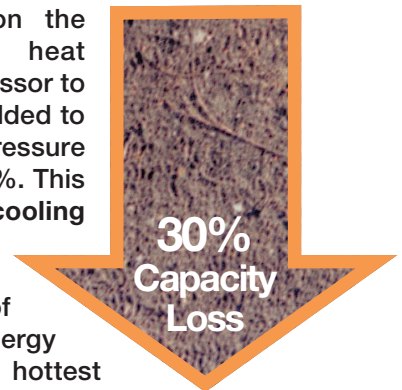
Take a look at a 10 ton air conditioning system operating for an average cooling season of 1,500 hours. When the coils are clean, it will cost approximately \$1,650 to operate for the season, given a typical Kw/hr cost and equipment SEER (efficiency). However, when the condenser coil becomes dirty, the six-month cost of operation escalates to \$2,268 . . . a 37% increase!



By comparison, if the condenser coil on this unit were kept clean, a savings of \$618 could be realized . . . a savings of about \$62 per ton. If you multiply your total building tonnage by \$62, you can see what the savings would be. For example, in a typical residential setting, the homeowner could realize a savings in electricity cost of about \$248 for the season for a 4 ton system.

## Dirty Condenser Coils Reduce The System's Ability To Cool.

As the dirt and grime on the condenser coil restrict heat transfer, causing the compressor to work harder, more heat is added to the system and the head pressure could rise by as much as 75%. This would result in a loss of cooling capacity of up to 30%, and our 10 ton system would now only provide 7 tons of cooling . . . at a higher energy cost and typically on the hottest days of the season.



## Dirty Condenser Coils Shorten Equipment Life.

Higher operating pressures and temperatures caused by a dirty coil represent still another problem: reduced life expectancy of the equipment. At the elevated system temperature and pressure, the compressor's lubricating oil can break down. In addition, acid formation can occur, leading to an acid burnout. Taken together, lack of lubrication and acid burn, the compressor is seriously compromised and will eventually fail. It is the heart of the air conditioning, refrigeration system, and its loss means no cooling. And, its replacement is the most expensive repair on an HVACR system.

Photo showing acid attack on the compressor's terminal wires



## THE NU-CALGON SOLUTION:

### CLEANING

From its traditional alkaline cleaners like CalClean® and Special HD CalClean® to its foaming “Brite” cleaners like Foam-Brite®, Nu-Brite®, Alka-Brite® and Cal-Brite®, Nu-Calgon’s high quality condenser coil cleaners will completely clean any condenser coil and restore it to its original design capacity. Whether it is dirt, dust, grease, grime, leaves, insects or even cottonwood, there is a Nu-Calgon cleaner that will get the job done.

The benefits of a clean condenser coil are many: the system will use less electricity, saving energy dollars, equipment life will be maximized and designed cooling will be achieved. Your authorized Nu-Calgon Service Technician is trained to use the Nu-Calgon cleaners properly so that these benefits can be realized.



### PROTECTION

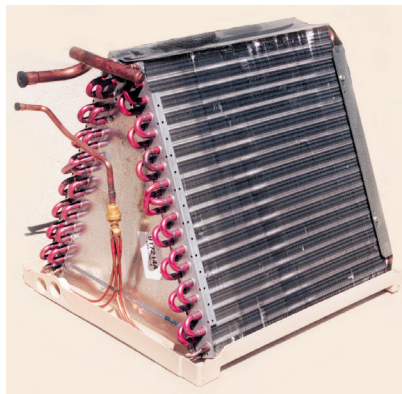
Once the coils are cleaned, the equipment’s designed capacity and power consumption are restored. However, the causes of the dirty coil, dirt, dust, grease, insects, pollen, etc. . . remain at large. As a result, the coils should be protected or shielded from these contaminants. This can be done with Cal-Shield®, a coil protectant. Cal-Shield will repel dirt, moisture, grease and grime so that the coil stays cleaner longer. In addition, its use will also make the next cleaning job much easier. Cal-Shield also protects coils from aggressive environments like salt air, food acids and other airborne corrosives. This all-important protection can be field-applied with safety and ease, and certification of its application can be provided.



## DIRTY EVAPORATOR COILS CAUSE PROBLEMS:

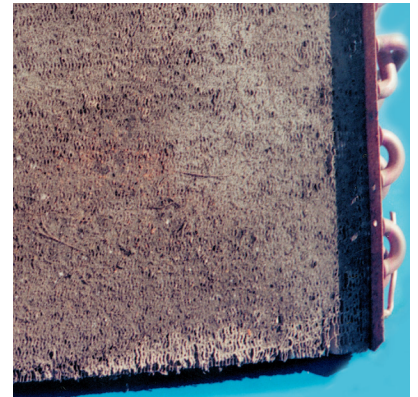
### Dirty Evaporator Coils Reduce Available Cooling.

As evaporator coils cool indoor air, they dehumidify or remove moisture. Any dirt, dust, nicotine, pollen, etc. that is also in the air will combine with the moisture and eventually foul the coil. Once this occurs, two problems arise: air flow is restricted or reduced and heat transfer is restricted or reduced. All this cuts cooling capacity and, if the coil becomes extremely dirty, the compressor could be damaged.



### Dirty Evaporator Coils Reduce Quality of Air Inside the Building.

Going back to the discussion on moisture and combining with dirt, dust, pollen, etc., this also becomes an excellent breeding ground for biological growths like bacteria, mold and mildew. These are the primary sources of indoor air quality problems and odors. As the air continues to flow across the coils and circulate throughout the building, its quality is compromised.



## THE NU-CALGON SOLUTION:

**The 4-Step Assurance Program.** Nu-Calgon’s 4-step IAQ Assurance Program will help keep the evaporator coil, drain pan and surrounding ductwork clean, enabling the system to provide optimum cooling and to remain free of biological growths. It will entail **CLEANING** and **PROTECTING** the coil, followed by **SANITIZING** of the coil, drain pan and surrounding ductwork and **PREVENTION** to control biological growths. See the next page for details.

# 4 Step Solution

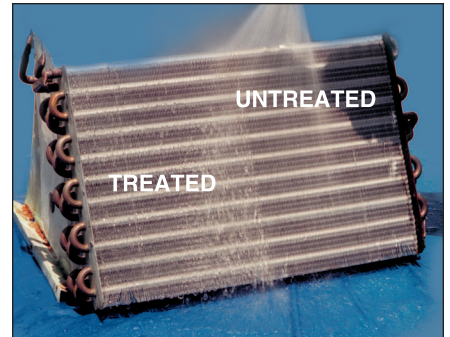
## STEP 1 - CLEAN

Clean indoor (evaporator) and outdoor (condenser) coils with Nu-Calgon's quality products that are designed to restore original Btu output and improve airflow.



## STEP 2 - PROTECT

Apply Nu-Calgon's Cal-Shield® to the evaporator and condenser coils to repel dirt and keep the coils cleaner longer.



## STEP 3 - KILL BACTERIA

Improve Indoor Air Quality by preventing bacteria on evaporator coils, drain pans and ductwork with Bio-Fresh cd or Evap-Fresh. Bio-Fresh cd is an EPA registered product that is a bacteriostat, fungistat and deodorizer. Evap-Fresh is both a cleaner and disinfectant that is also EPA registered to kill organisms typically found in HVAC systems.



## STEP 4 - PREVENT

Place Nu-Calgon Gel Tabs or PanPads (an EPA registered drain pan biocide) in the evaporator drain pan. This prevents biological growths and slime. Gel Tab and PanPad protection will last up to 3 months.

