2023

EFFICIENCY STANDARDS & DOE TEST PROCEDURE CHANGE

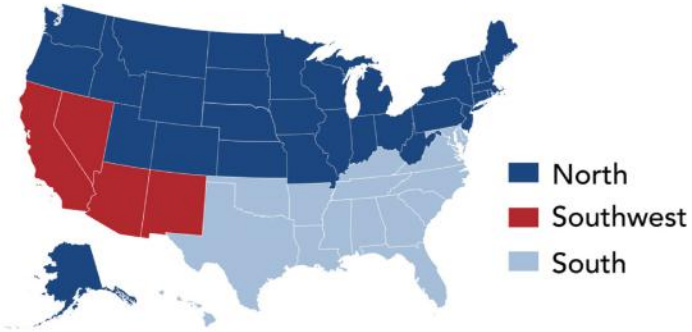
As a part of ongoing rulemakings and revising of energy efficiency standards, effective January 1, 2023, the following will be the minimum efficiencies:

2023 (M1)	North (National)	South	Southwest
AC SEER2	13.4	14.3 < 45k BTUH 13.8 >= 45k BTUH	14.3 < 45k BTUH 13.8 >= 45k BTUH
AC EER2			11.7 < 45k BTUH 11.2 >= 45k BTUH 9.8 >= 15.2 SEER2
HP SEER2	14.3		
HP HSPF2	7.5		

[10 CFR § 430.32(c)(5) & 10 CFR § 430.32(c)(6)]

These new standards are effectively 1 point of SEER higher. Simultaneously the federal test procedure used by manufacturers to develop efficiency ratings is changing. This change is being made to ensure the test procedure represents an average use cycle, in particular by using a higher static pressure during testing. This in turn lowers the rating. Because of this, the industry will be transitioning from SEER, EER and HSPF under the current "M" test procedure to SEER2, EER2, and HSPF2 under the new "M1" test procedure. [Appendix M1 to Subpart B of Part 430, Title 10]

There is no change in the geography of the regions.



Sell-through:

- The national standards, (North AC and HP nationally) are effective for systems manufactured on or after January 1, 2023. As such, these products have an indefinite sell-through period. [10 CFR § 430.32(c)(5)]
- For regional standards (South & Southwest AC), the requirements are effective for systems installed on or after January 1, 2023. As such, there is no sell-through period for products in those markets [10 CFR § 430.32(c)(6)], however:
  - Current industry consensus is that while active systems must have "M1" ratings, discontinued/ production stopped systems may be installed after Jan 1, 2023 if all ratings (hang tag) meet equivalent "M" ratings of:
    - 15 SEER (w/12.2 EER in SW) < 45k BTUh
    - 14.5 SEER (w/11.7 EER in SW) >= 45k BTUh

  [10 CFR § 429.102(c)(4)(i)] *Note: This is not legal advice.*
- The DOE defines Installation as "… the connection of the refrigerant lines and/or electrical systems to make the central air conditioner operational." [10 CFR § 430.2]

2023
EFFICIENCY STANDARDS & DOE TEST PROCEDURE CHANGE *cont.*

AHRI "M1" Ratings:
ADP has completed the DOE required validation testing to allow us to certify product to the new "M1" test procedure. We've begun creating "M1" ratings and are the first ICM to have "M1" ratings in the AHRI directory. We will continue to update AHRI with new ADP ratings as outdoor unit manufacturers publish their "M1" ratings.

ADP Impact:
Based on the "M1" ratings available to date, we do not anticipate making significant product changes. We are seeing some shift in product strategies due to outdoor unit manufacturer ratings changes. ADP's team will continue to work closely with each customer to develop a transition plan to any new SKUs, particularly for customers affected by regional standards.

Key Takeaway:
- Efficiency standards are increasing January 1, 2023.
  - o New test procedure changes the measured efficiency.
  - o SEER, EER and HSPF being replaced by SEER2, EER2, and HSPF2
- Indefinite sell-through in North for AC and nationally for HP.
- No sell through in the South & Southwest for AC – ***Inventory planning is critical in 2022.***
  - o Potential limited exception for discontinued product.
- AHRI directory now includes SEER2, EER2, and HSPF2.
- ADP has begun publishing "M1" ratings in the AHRI directory. Availability of additional ratings is dependent on when each outdoor unit manufacturer published their new "M1" Ratings.

2024
SAFETY STANDARD

The safety standard covering some of our products will be changing effective January 1, 2024. The move from UL 1995 to UL 60335-2-40 is being done to align with global standards and in preparation for the transition to low GWP A2L refrigerants.

ADP Impact:
ADP will be conducting all the necessary product testing and design validation to be certified to UL 60335-2-40 prior to the deadline. We do not anticipate needing to make any significant product changes to accomplish this outside of those needed for specific A2L requirements.

Key Takeaway:
- New UL standard in 2024 in preparation for A2L
- Little to no impact for distribution.

2025

LOW GWP REFRIGERANT TRANSITION

The American Innovation and Manufacturing Act (AIM Act) sets the stage for a national transition to low GWP refrigerants in support of the Kigali Amendment to the Montreal Protocol. This legislation gives the EPA authority for phase-down of current HFC's like R-410A.

While R-410A had zero ozone depletion potential, it still has significant Global Warming Potential (GWP). Low GWP refrigerants like R-32 or R-454B have both zero ODP and low (<750) GWP.

	Ozone Depletion Potential (ODP)	100 Year Global Warming Potential of Different Refrigerants
R12 (CFC)	1.0	10,900
R22 (HCFC)	0.055	1,810
R410A (HFC)	0	2,090
R32 (HFC)	0	675
R454B (HFC/HFO)	0	466

EPA recently granted petitions under the AIM Act (from AHRI and others) to require residential and light commercial air conditioners to use refrigerants with a GWP of 750 or less, effective for units manufactured after January 1, 2025. [85 FR 57141 & EPA Fact Sheet]

Final rules implementing this requirement will be created by the EPA over the next two years using the standard "notice and comment" rulemaking process. [85 FR 57141 & 86 FR 74080]

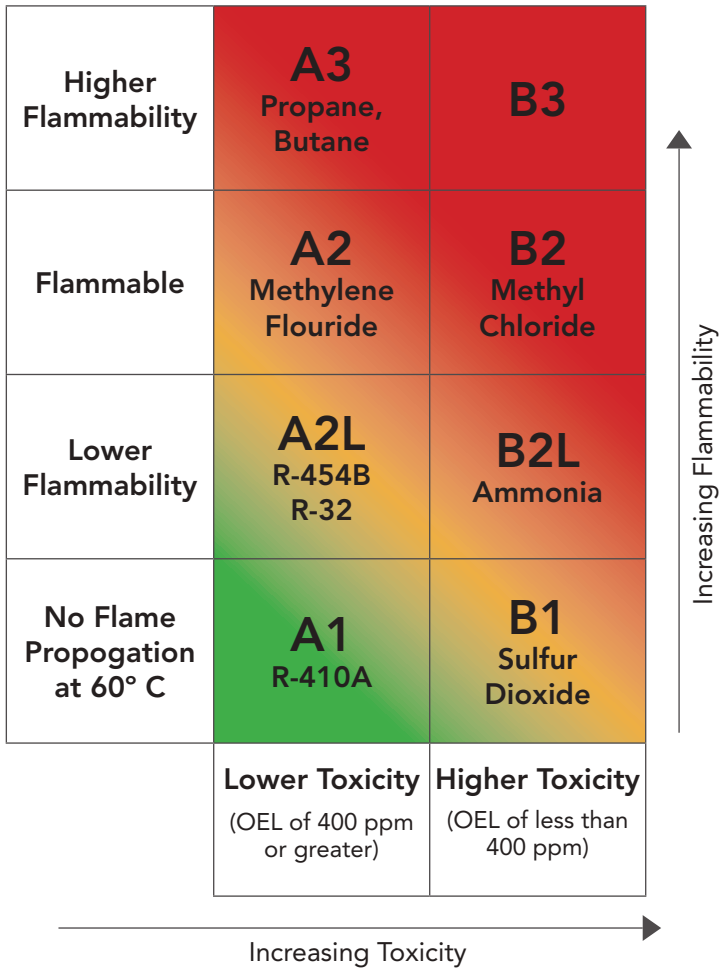
One major challenge with these new refrigerants is their classification as "mildly flammable", which will require additional safety requirements (UL 60335-2-40 4th Ed. - complete, pending final public review) and may need adoption at the state and local level (building codes).

LOW GWP REFRIGERANT TRANSITION *cont.*

The proposed safety requirements may depend on the amount of system charge. One proposed requirement directly impacting evaporator coils is the need for a refrigerent leak detection system. This will use a sensor factory or field installed on the coil, to turn on the furnace/air handler fan if it detects a leak of sufficient size. This is to dilute the leak and prevent it from reaching a high enough concentration that could be ignited. We expect manufacturers will be able to meet this requirement with sensors using existing technologies and will involve relatively simple field wiring, similar to that needed for a condensate float switch or humidifier.

In any transition scenario, installed systems using legacy refrigerants will continue to need service and replacement. We will continue to manufacture legacy products as needed to service these systems and will work with distributors to develop the SKU strategies to do so.

ASHRAE Standard 34 Safety Classes



ADP Impact:

ADP will be certifying products for a variety of refrigerants, including R-32 and R-454B prior to the transition date. This will include any necessary safety systems like refrigerant leak detectors. With a long legacy of matching products for a wide range of applications, we do not see any unreasonable challenges ahead. Our goal is to have the same breadth of product rating with the same range of outdoor equipment as we do today.

Key Takeaway:

- Transition to low-GWP & A2L refrigerants coming January 1, 2025.
- EPA final rulemakings pending.
- Safety standards for A2L will be added burden for manufacturers, distributors, and contractors.
- ADP will have the same range of product applications across all manufacturers as it does today.
- ***We will update you as the landscape develops.***