



United States
Environmental Protection Agency

Air and Radiation
Stratospheric Protection Division
6205J

Foam Sector Substitutes under SNAP as of September 30, 2009

SNAP Information: <http://www.epa.gov/ozone/snap>

EPA has created the Significant New Alternatives Policy (SNAP) Program under section 612 of the Clean Air Act Amendments. SNAP evaluates alternatives to ozone-depleting substances. Substitutes are reviewed on the basis of ozone depletion potential, global warming potential, toxicity, flammability, and exposure potential as described in the March 18, 1994 final SNAP rule (59 FR 13044). Lists of acceptable and unacceptable substitutes will be updated periodically in the Federal Register. The following SNAP notices and subsequent final rules are included in this list: August 26, 1994 (59 FR 44240), January 13, 1995 (60 FR 3318), June 13, 1995 (60 FR 31092), July 28, 1995 (60 FR 38729), February 8, 1996 (61 FR 4736), May 22, 1996 (61 FR 25585), September 5, 1996 (61 FR 47012), October 16, 1996 (61 FR 54030), March 10, 1997 (62 FR 10700), June 3, 1997 (62 FR 30275), February 24, 1998 (63 FR 9151), May 22, 1998 (63 FR 28251), January 26, 1999 (64 FR 3861), April 28, 1999 (64 FR 22981), June 8, 1999 (64 FR 30410), December 6, 1999 (64 FR 68039), April 11, 2000 (65 FR 19327), June 19, 2000 (65 FR 37900), December 18, 2000 (65 FR 78977), July 22, 2002 (67 FR 47703), August 21, 2003 (68 FR 50533), September 30, 2004 (69 FR 58269), October 1, 2004 (69 FR 58903), September 28, 2006 (71 FR 56884), March 28, 2007 (72 FR 14432), January 2, 2009 (74 FR 21), and September 30, 2009 (74 FR 50129).

ACCEPTABLE Substitutes for CFC Foams Under the Significant New Alternatives Policy (SNAP) Program as of September 30, 2009

Substitute	CFC-11 Rigid Polyurethane & Polyisocyanurate Laminated Boardstock	CFC-11 Rigid Polyurethane, Appliance ¹	CFC-11 Rigid Polyurethane, Commercial ¹	CFC-11 Rigid Polyurethane, Slabstock ¹	CFC-12 Polystyrene, Extruded Boardstock & Billet	CFC-11, CFC-113 Phenolic Insulation Board & Bunstock	CFC-11 Flexible Polyurethane	CFC-11 Integral Skin Polyurethane ¹	CFC-12 Poly-styrene, Extruded Sheet	CFC-12, CFC-114, CFC-11 Polyolefin ²
HCFC-123										
HCFC-142b										
HCFC-22										
HCFC-141b / HCFC-123 Blends										
HCFC-22 / HCFC-142b Blends										
HCFC-22 / Saturated Light Hydrocarbons C3-C6 Blends										

NOTE:

1. - Acceptability listings include blends of acceptable substitutes in these end-uses.

2. - Under the Section 610 Non-Essential Use Ban, the sale and distribution or offer for sale and distribution of polyolefin foam manufactured with HCFCs is banned except for closed cell rigid polyethylene foam when such foam is suitable in shape, thickness and design to be used as a product that provides insulation around pipes used in heating, plumbing, refrigeration, or industrial process systems.

 =Acceptable

**ACCEPTABLE Substitutes for CFC Foams Under the
Significant New Alternatives Policy (SNAP) Program as of September 30, 2009 (CONTINUED)**

Substitute	CFC-11 Rigid Polyurethane & Polyisocyanurate Laminated Boardstock	CFC-11 Rigid Polyurethane, Appliance ¹	CFC-11 Rigid Polyurethane, Commercial ¹	CFC-11 Rigid Polyurethane, Slabstock ¹	CFC-12 Polystyrene, Extruded Boardstock & Billet	CFC-11, CFC-113 Phenolic Insulation Board & Bunstock	CFC-11 Flexible Polyurethane	CFC-11 Integral Skin Polyurethane ¹	CFC-12 Polystyrene, Extruded Sheet	CFC-12, CFC-114, CFC-11 Polyolefin
Formic Acid										
Saturated Light Hydrocarbons C3-C6										
HFC-134a										
HFC-152a										
HFC-143a										
HFC-245fa										
HFO-1234ze										
2-Chloropropane										
Electroset Technology										
Carbon Dioxide										
Vacuum Panels										
Methylene Chloride										
Acetone										
AB Technology										
Ecomate										
HFC-152a/Saturated Light Hydrocarbon Blends										
Chemical Blend A										
Methyl Formate										

NOTE:

1. - Acceptability listings include blends of acceptable substitutes in these end-uses.

2. - Under the Section 610 Non-Essential Use Ban, the sale and distribution or offer for sale and distribution of polyolefin foam manufactured with HCFCs is banned except for closed cell rigid polyethylene foam when such foam is suitable in shape, thickness and design to be used as a product that provides insulation around pipes used in heating, plumbing, refrigeration, or industrial process systems.



=Acceptable

**UNACCEPTABLE Substitutes for CFC Foams Under the
Significant New Alternatives Policy (SNAP) Program as of September 30, 2009**

Substitute	ODS Being Replaced	End-Use	Reason
HCFC-141b	CFC-11	Polyolefin	HCFC-141b has an ODP of 0.11, almost equivalent to that of methyl chloroform, a Class I substance. The Agency believes that non-ODP alternatives are sufficiently available to render the use of HCFC-141b unnecessary in polyolefin foams.
HCFC-124	CFC-11, 12,113,114	All	Alternatives exist with lower or zero-ODP.
HCFC-141b	CFC-11	All	
HCFC-22; HCFC-142b	All CFCs	Rigid polyurethane and polyisocyanurate laminated boardstock; Rigid polyurethane appliance; Rigid polyurethane spray and commercial refrigeration, and sandwich panels; Rigid polyurethane slabstock and other foams; Polystyrene extruded insulation boardstock and billet ¹ ; Phenolic insulation board and bunstock; flexible polyurethane; Polystyrene extruded sheet	Alternatives exist with lower or zero-ODP.

¹ For existing users of HCFC-22 and HCFC-142b in polystyrene extruded insulation boardstock and billet and the other foam end uses (rigid polyurethane and polyisocyanurate laminated boardstock , rigid polyurethane appliance; phenolic insulation board and bunstock; flexible polyurethane; and polystyrene extruded sheet) , as of November 4, 2005, the unacceptability determination is effective on January 1, 2010 .

**ACCEPTABLE Substitutes for HCFC Foams Under the
Significant New Alternatives Policy (SNAP) Program as of September 30, 2009**

Substitute	Rigid Polyurethane & Polyisocyanurate Laminated Boardstock	Rigid Polyurethane, Appliance ¹	Rigid Polyurethane, Commercial ¹	Rigid Polyurethane, Slabstock ¹	Polystyrene, Extruded Boardstock & Billet	Phenolic Insulation Board & Bunstock	Integral Skin Polyurethane ^{1, 2}	Polystyrene, Extruded Sheet	Flexible Polyurethane	Polyolefin ³
Water										
CO ₂										
HFC-134a										
HFC-152a										
HFC-245fa										
HFC-365mfc										
HFO-1234ze										
Exxsol Blowing Agents										
Saturated Light Hydrocarbons C3-C6										
Formic Acid										
Acetone										
Methyl Formate										
2-Chloropropane										
Vacuum Panels										
Blends of HFC-245fa and HCFC-22 as a substitute for blends of HCFC-141b and HCFC-22										
Blends of HFC-365mfc and at least 5% HFC-245fa										
Ecomate										
Formacel B										
Formacel TI										



=Acceptable



=Acceptable in Commercial Refrigeration and Sandwich Panels, not in Spray Foam

NOTES:

1. - Acceptability listings include blends of acceptable substitutes in these end-uses.
2. - Under the Section 610 Non-Essential Use Ban, the sale and distribution of integral skin foam manufactured with HCFCs (with the exception of auto safety foam) was banned as of January 1, 1994. HCFCs were banned from auto safety integral skin foam effective January 1, 1996.
3. - Under the Section 610 Non-Essential Use Ban, the sale and distribution or offer for sale and distribution of polyolefin foam manufactured with HCFCs is banned except for closed cell rigid polyethylene foam when such foam is suitable in shape, thickness and design to be used as a product that provides insulation around pipes used in heating, plumbing, refrigeration, or industrial process systems.

UNACCEPTABLE Substitutes for HCFC Foams Under the Significant New Alternatives Policy (SNAP) Program as of September 30, 2009

Substitute	ODS Being Replaced	End-Use(s)	Reason
HCFC-22, HCFC-142b, or blends thereof	HCFC-141b	Rigid Polyurethane or Polyisocyanurate Boardstock, Appliance, Spray foams	Alternatives exist with lower or zero-ODP.
HCFC-124	HCFC-22, HCFC-142b, HCFC-141b, HCFC-123, or blends thereof	All	Alternatives exist with lower or zero-ODP.
HCFC-22, HCFC-142b, or blends thereof	HCFC-141b	Rigid Polyurethane Commercial Refrigeration, Sandwich Panels, Slabstock and Other foams ¹	Alternatives exist with lower or zero-ODP.

¹ For existing users of HCFC-22 and HCFC-142b as of November 4, 2005 other than in marine applications, the unacceptability determination is effective on March 1, 2008; for existing users of HCFC-22 and HCFC-142b as of November 4, 2005 in marine applications, including marine flotation foam, the unacceptability determination is effective on September 1, 2009. For an existing user of HCFC-22 or HCFC-142b that currently operates in only one facility that it does not own, and is scheduled to transition to a non-ODS, flammable alternative to coincide with a move to a new facility and installation of new process equipment that cannot be completed by March 1, 2008, the unacceptability determination is effective January 1, 2010.