

Mobile Climate Control	Document Number	Revision Level
	57-00765	Rev -
Engineering Requirement	Prepared By / Date	Reviewed By / Date
	N. Rizzo July 13, 2007	T. Taylor July 13, 2007
Title: Materials of Concern – Supplier Criteria for the Identification & Elimination		

This document applies to:	
Suggested application – All MCC Class Code Drawing Numbers (04, 10, 12, 14, 18, 22, 24, 26, 30, 34, 38, 40, 42, 44, 50, 52, 54, 56, 58, 65, 68, 73, 81, 86 & 91)	Related MCC Engineering Requirements: 1) 57-00737 MOC's Data Management Process 2) MCC SWI ENG-1-04

1.0 Purpose:

Establish supplier criteria for identifying & eliminating Materials of Concern from component parts and assemblies furnished to Mobile Climate Control for use in Transport Refrigeration & Air Conditioning equipment and to document MCC Engineering Standard Work for recording and managing MOC data once identified.

2.0 Applicable:

This Engineering Requirement is applicable to all Mobile Climate Control Division products globally. This document shall be specified on all relevant MCC purchased component part & assembly drawings and/or purchase orders. The scope of applicable parts & assemblies shall include but not limited to the class code numbers described in "suggested application" above.

3.0 Definition - MOC's (i.e. Materials of Concern) include but are not limited to the following:

Material of Concern	Typical Mobile Climate Control Component / Process
Brominated flame retardants	Insulation, plastics for electromechanical components (i.e. contactors, relays, terminal blocks, pumps, etc.)
Cadmium	Relays, contactors, starters, thermostats, motors, braze rod, sight glasses
Chromium (VI)	Fasteners, (i.e. screws, studs, etc.), aluminum extrusions, castings, coils
Lead	Printed circuit boards, compressor & fan motor bearings
Chlorinated solvents	Cleaning operations.

Materials of Concern (i.e. MOC05) Regulation Maximum Concentration values:

This directive permits the use of "banned" substances in spare parts to repair, or the use of, equipment put on the market before July 1, 2006.

This directive allows

- for 0.1% by weight in homogeneous materials for lead, mercury, hexavalent chromium, polybrominated biphenyls (PBB) & polybrominated diphenyl ethers (PBDE).
- for 0.01% by weight in homogeneous materials for cadmium.
- for use of cadmium on electrical contacts.
- for lead as an alloying element in steel containing up to 0.35% lead by weight, aluminum containing up to 0.4% lead by weight and as a copper alloy containing up to 4% lead by weight.
- for lead in lead-bronze bearing shells and bushings
- for the use of DecaBDE in polymeric applications

4.0 Supplier Identification & Notification of MOC's

The supplier shall be responsible for notifying both MCC Engineering & Purchasing Departments, in writing, of any MOC's supplied in any part or assembly furnished to MCC. Manufacturing processes shall be identified by supplier, manufacturing and/or quality personnel and reported as described in 5.0 below

5.0 CTD Internal Method of Application / Standard Work Instructions

5.1 Standard Work Instructions: Engineering Program Managers are responsible for identifying and eliminating MOC's in MCC product designs under their control. Additionally, the Engineering Program Manager or his designee shall work in cooperation with MCC manufacturing, quality & purchasing toward the goal of eliminating MOC's from manufacturing processes.

5.2 MOC's & Passport Process: Elimination of MOC's shall be incorporated into the Passport process for new product introduction.

5.2.1 Technology Review – Identification of any potential use of MOC's along with a plan for use of alternate materials.

5.2.2 Test Plan QRB – Technical readiness of MOC alternative provided

5.2.3 Design Freeze QRB – Alternate material incorporated into product design. If alternative not technically feasible, use of MOC referred to PRB for review and approval.

5.2.4 Product Launch QRB – confirm no MOC's used in manufacturing process. If alternative not technically feasible, use of MOC referred to PRB for review and approval.

5.3 Carrier & UTC MOC inventory database: shall be updated with any approved deviation to reflect validated production systems, including source materials, components and products.

5.3.1. Any part, assembly or manufacturing process which contains an MOC in excess of those established in paragraph 3.0 and approved for use by PRB must be submitted to CTD Engineering EH&S or local EH&S staff. This information must then be forwarded by MCC Engineering EH&S or a local EH&S personnel to MCC WHQ EH&S to be maintained in the Mobile Climate Control MOC database.

5.4 MOC's & Global PCA

Identification & elimination of MOC's is to be incorporated into the Global PCA process for product redesign & process changes. See MCC Engineering Requirement 57-00737 for the applicable process map.

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