

**PACKAGE ID** - 001027SUN0000 COOLWARM

**KWIC TITLE** - Magnet Cooldown and Warmup Model

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**LIMITATION CODE** -UNL                   **AUDIENCE CODE** - UNL

**COMPLETION DATE** - 02/01/1994   **PUBLICATION DATE** - 02/01/1994

**DESCRIPTION** - This program evaluates cooldown/warmup performance of an SSC magnet or magnet strings, But can be applied to any other iron coldmass which is cooled or warmed by helium.

**PACKAGE CONTENTS** - Media Directory; Software Abstract; READ.ME File (6 pages); Media includes Source Code, Sample Problem Input and Output Data;

**SOURCE CODE INCLUDED?** - Yes

**MEDIA QUANTITY** - 1 CD Rom

**METHOD OF SOLUTION** - The helium properties are evaluated through the NBS631 helium property subroutines (modified). For the iron, a table of the specific heat cp as a function of temperature is supplied. Linear interpolation is used between table points. The program is based on a one-dimensional transient model for helium flow through a channel exchanging heat with the surrounding iron. A lumped model for the iron mass is used.

**COMPUTER** - SUN

**OPERATING SYSTEMS** - Sun OS, VAX/VMS, MS-DOS, any that supports Fortran 77 compiler

**PROGRAMMING LANGUAGES** - Fortran 77

**SOURCE CODE AVAILABLE (Y/N)** - Y

**OTHER PROG/OPER SYS INFO** - For the Sun OS, type: f77 coolwarm.f  
heprop.f-0coolwarm. To run the program after the executable is created, type: coolwarm.

**HARDWARE REQS** - The executable size for the Sun OS is approximately 300 Kb.

**ABSTRACT STATUS** - Released AS-IS 7/11/95.

**SUBJECT CLASS CODE** - VH

**KEYWORDS** -

E S T S C  
ENERGY SCIENCE & TECHNOLOGY SOFTWARE CENTER  
SOFTWARE ABSTRACT

PAGE 2  
DATE 03/08/2002

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COMPUTER PROGRAM DOCUMENTATION  
C CODES  
SUPERCONDUCTING SUPER COLLIDER  
SUPERCONDUCTING MAGNETS  
HEAT TRANSFER  
HELIUM DILUTION REFRIGERATION

**EDB SUBJECT CATEGORIES** -  
990200 430303

**SPONSOR** - DOE/ER

**PACKAGE TYPE** - AS - IS