

6.17 Example Q: Yield Surface Plot

Sample Input File for a Yield Surface Plot

The following example is used to explain the yield surface capabilities in more detail.

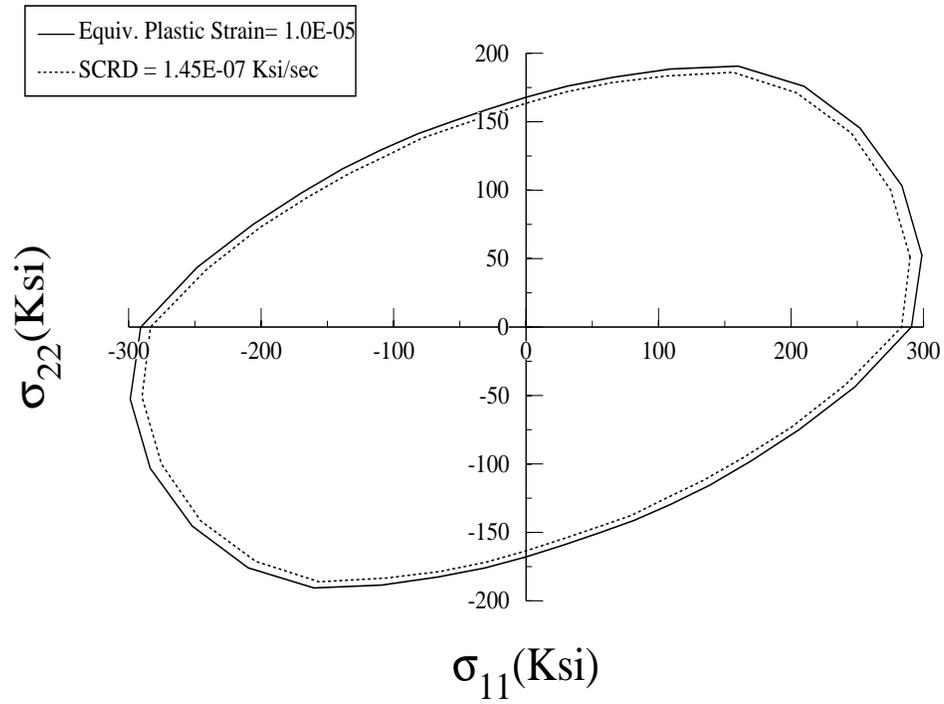
Problem Summary:

Load Type:	Thermomechanical
Load Component:	Combined 11-component and 22-component
Load History:	Yield surface probing
Load Control:	Strain
Load History Data:	Constant temp. = 23 ° C $\dot{\epsilon} = 1.0 \times 10^{-5} / \text{sec}$, $\epsilon_{max} = 0.05$, $\epsilon_{min} = 0$. (along each probing angle) $\Delta t = 5$. sec.
Micromechanics model:	Double Periodicity
Fiber Packing Arrangement:	Square pack at 35% fiber volume ratio
Integration Algorithm:	Forward Euler
Constituent Material Model:	Fiber: Elastic Matrix: GVIPS – isotropic form
Constituents:	Fiber: SCS-6 (properties input manually) Matrix: TIMETAL21S

test of yield surface option

```
*PRINT
  NPL=0 %
*LOAD
  LCON=3 LOP=1 LSS=1 %
*MECH
  NPTW=2 TI=0.,5000. LO=0.,0.05 %
*THERM
  NPTT=2 TI=0.,5000. TE=23.,23. %
*SURF
  NPRE=0 ISP=1 IAN=10
  C1=10.E-6 C2=1.45E-7 C3=0.0 C4=0.0
*MODEL
  MOD=1 %
*SOLVER
  NTF=1 NPTS=2 TIM=0.,5000. STP=5. %
*FIBER
  NFIBS=1
  NF=1 MF=6 NDPT=1 MAT=U IFM=1&
  EL=58.E3,58.E3,0.20,0.20,24.167E3,4.5E-6,4.5E-6 %
*MATRIX
  NMATX=1
  NM=1 MM=4 NDPT=2 MAT=A %
*MRVE
  IDP=1 VF=0.35 %
*CURVE
  NP=1 %
*MACRO
  NT=1
  NC=1 X=2 Y=8 NAM=surf %
*END
```

👉 **Note:** A zero value for a given criteria means that specific criteria will be immediately satisfied, consequently the output associated with that criteria is meaningless. The output associated with the nonzero criteria are correct.



Resulting yield surface