SVENSK STANDARD
SS-EN 6064:2018

Fastställd/Approved: 2018-01-03
Publicerad/Published: 2018-01-22
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 49.020; 49.025.01

SWEDISH STANDARDS INSTITUTE

Flyg- och rymdteknik – Analys av ickemetalliska material (härdade) för bestämning av härdningsgrad med hjälp av differentiell skanningskalorimetri (DSC)

Aerospace series – Analysis of non-metallic materials (cured) for the determination of the extent of cure by Differential Scanning Calorimetry (DSC)

Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka
Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

Ta del av det färdiga arbetet
Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standard-paket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete
Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.

Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence
As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

Get to know the finished work
We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception
With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00

Europastandarden EN 6064:2017 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 6064:2017.

The European Standard EN 6064:2017 has the status of a Swedish Standard. This document contains the official version of EN 6064:2017.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 6064

December 2017

ICS 49.025.01

English Version

Aerospace series - Analysis of non-metallic materials (cured) for the determination of the extent of cure by Differential Scanning Calorimetry (DSC)

Série aérospatiale - Analyse Enthalpique Différentielle (AED) des matériaux non métalliques (polymérisés) pour la détermination du degré de polymérisation

Luft- und Raumfahrt - Analyse von nichtmetallischen Werkstoffen (gehärtet) zur Bestimmung des Vernetzungsgrades durch dynamische Differenzkalorimetrie (DSC)

This European Standard was approved by CEN on 26 July 2017.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 6064:2017 E

Contents Page

European foreword

This document (EN 6064:2017) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2018 and conflicting national standards shall be withdrawn at the latest by June 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This test method defines the procedure for the estimation of the extent of cure of certain non-metallic materials (e.g. preimpregnated and neat resin systems, adhesives) for aerospace use. The extent of cure is estimated by Differential Scanning Calorimetry (DSC) measurements of uncured (reference) and cured materials. Additional evidence on the extent of cure may be gained by combining results from this method with those obtained by other techniques.

This standard does not give any directions necessary to meet the health and safety requirements. It is the responsibility of the user of this standard to adopt appropriate health and safety precautions.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2331, *Aerospace series — Textile glass fibre preimpregnates — Test method for the determination of the resin and fibre content and mass of fibre per unit area*

EN 2559, *Aerospace series — Carbon fibre preimpregnates — Determination of the resin and fibre content and the mass of fibre per unit area*

EN 2743, *Aerospace series — Fibre reinforced plastics — Standard procedures for conditioning prior to testing unaged materials*

3 Symbols and definitions

For the purposes of this document, the following symbols and definitions apply.

The determination of these parameters shall be agreed upon between manufacturer and purchaser in case of non-ideal curves or different instrument types.

3.1
curing reaction (see Figure 1)

θ is the heating rate, in degrees Celsius or Kelvin by minutes;

ΔH is the reaction enthalpy, in Joules by grams;

ΔH_{100} is the reaction enthalpy corrected to 100 % resin content, in Joules by grams;

A-curve is the reference reaction curve for uncured material;

B-curve is the reaction curve for an already (semi-) cured sample.

3.2
calibration (see 6.6)

T_m is the melting temperature, in degrees Celsius or Kelvin

ΔH_m is the enthalpy of fusion, in Joules by grams

4 Principle of the method

Differential Scanning Calorimetry (DSC) measures the temperatures and the heat flow associated with transitions in materials as a function of time and temperature.