

New EU directives

GHS: Globally Harmonised System of Classification and labeling of chemicals
(End of June 2008):

Information on physical hazards and toxicity of the chemicals must be available to enhance the protection of human health and environment.

REACH: Registration, Evaluation and Authorisation of Chemicals (April 2008)

Greater responsibility to the industry to manage the risks from chemicals and to provide safety information on the substances.

Useful links:



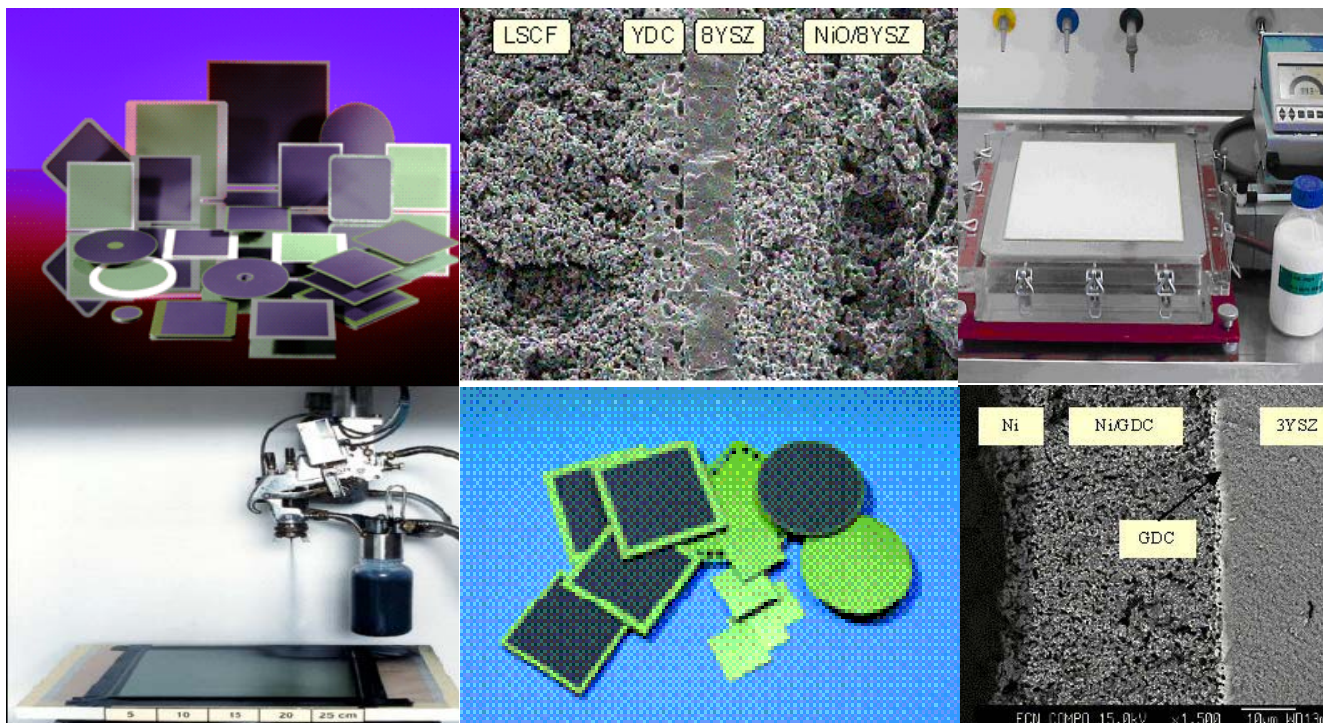
Study carried out by :
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Project no.: SES6-CT-2003-502612
Project acronym: Real-SOFC
Project title: *Realising Reliable, Durable,
Energy Efficient and Cost Effective
SOFC Systems*

MANUFACTURING SOFC - ACCORDING TO EXISTING AND FUTURE EUROPEAN LEGISLATION



How SOFC industry complies to existing and future legislation ?

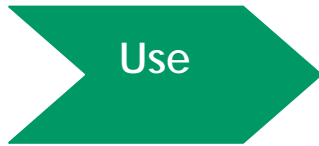
www.real-sofc.org


Analysis of EU legislation according to



EU Directives	67/548/EEC: on classification, labelling and packaging for substances	90/394/EEC: Exposure to carcinogens and mutagens at work
Application to SOFC	NiO: carcinogenic Cat. 1 Toluene: Toxic Cat. 3 Alcohol: highly flammable Material Safety Data Sheet required	Limitation of the quantities at the place of work (benzene, NiO)
	79/831/EC: Evaluation and notification	92/85/EC; 94/33/EC: Pregnant and young workers
	EINECS list: notification of hazardous chemicals to authorities NiO, toluene and alcohols on the EINECS list	Not allowed to work with NiO and toluene
	96/82/EC "Seveso II": Risk assessment	96/61/EC: Integrated Prevention and Pollution Control
	Safety reports are required if : quantity of NiO is exceeding 1 ton quantities of toluene and ethanol are exceeding 5000 tons	Best Available Techniques should be applied , such as water-based tape casting/screenprinting, alternative methods to apply Ni in anodes
	96/82/EC "Seveso II": Risk assessment	91/13/EC: Limitation of Volatile Organic Compounds
	Safety reports are required if : quantity of NiO is exceeding 1 ton quantities of toluene and ethanol are exceeding 5000 tons	Reduction program required if toluene > 30 tons /year
	Directive 2005/32/EC "Framework for the setting of	
	Integrating environmental considerations as early as possible into the	

SOFC Life-Cycle



<p>94/55/EC: European Act on international transport of Dangerous goods by Road "ADR"</p>	<p>73/23/EEC: Electrical equipment with output voltage between 50-1000 V</p>	<p>91/689/EEC: Hazardous waste</p>
<p>Classification under UN numbers: toluene (UN1294); Fuel Cell Cartridges (UN3473)</p>	<p>CE marking required </p>	<p>No mixing of hazardous and no-hazardous wastes. During disposal, NiO should not be emitted as fine particles</p>
	<p>92/880/EEC: Eco-Label directive</p>	<p>94/67/EC, 00/76/EC: Incineration of wastes</p>
	<p>Because of the use of NiO, no ecolabel is possible</p>	<p>There are certain limits in emissions at the incineration power plants</p>
	<p>76/769/EEC: Restriction of use of dangerous substances</p>	<p>2002/96/EC: Waste Electrical and Electronical Equipment "WEEE"</p>
	<p>Dangerous substances such as NiO, toluene or ethanol can not be brought on the market as product, but not a problem in an finished article as SOFC</p>	<p>Producers must take care of the collection, treatment and recycling of their products. Refractory ceramic fibers must be removed from WEEE.</p>
	<p>2002/95/EC: Restriction of the use of Hazardous Substances in electrical equipment "RoHS"</p>	
	<p>Prohibition of the use of Lead, Mercury, Cadmium hexavalent</p>	

Eco-design requirements of Energy-using products"

product development (incl. Life- Cycle Impact Assessment, Waste management...)