



# SAFR<sup>®</sup>

## Systematic Assessment for Flame Retardants



**Optimizing sustainable  
fire safety choices**



**Starting from the  
design stage**



**Addressing the  
consumer use**

# SAFR®

## Systematic assessment for flame retardants

### WHAT IS SAFR®?

SAFR® is a framework that provides a rigorous evaluation of specific flame retardants in their applications, thus enabling users to choose the most sustainable product for the intended use. As such, SAFR® is committed to the sustainable management of chemicals from the very first stage of the product design.

### HOW DOES SAFR® WORK?

SAFR® allows for the measurement of the sustainability profile of individual flame retardants based on their use. By using the latest available scientific data, SAFR® ensures the use of the appropriate flame retardant for the application in question and when needed, the replacement with an effective and more sustainable solution. Building on accepted hazard criteria, SAFR® assesses the extent to which hazards translate into potential risks due to possible exposure to humans and/or the environment during a product's service life.

SAFR® has an exposure-based approach that utilizes quantifiable accelerated blooming, leaching or volatilization data from the base material matrix to thoroughly evaluate the use of the chemical in the chosen application.

SAFR®'s assessment of the given flame retardant leads to the identification of:

1. Uses that are either recommended, acceptable or not recommended, or
2. Unacceptable hazards in which case alternatives can be identified.

### WHY SAFR®?

Flame retardants enable inherently flammable materials to meet rigorous fire safety standards. From everyday electrical & electronics, automotive, building & construction, flame retarded materials are an essential part of safe modern living. Nevertheless, fire safety should not compromise safety for human health and the environment: this is where the SAFR® framework goes the extra mile. ICL set a challenge: could an easy to follow system be introduced for flame retardants to reward best in class based on performance, inherent properties and the level of potential human and environmental exposure in use? We believe SAFR® is uniquely positioned to meet the needs of consumer product manufacturers and can provide both a simple and science-based framework that goes beyond regulatory systems.

### OUR ASSESSMENT OF FLAME RETARDANTS IN THEIR USES

hazard exposure	low	medium	high	unacceptable
low potential	recommended	recommended	acceptable	TO BE PHASED OUT
medium potential	recommended	acceptable	not recommended	
high potential	acceptable	not recommended	not recommended	

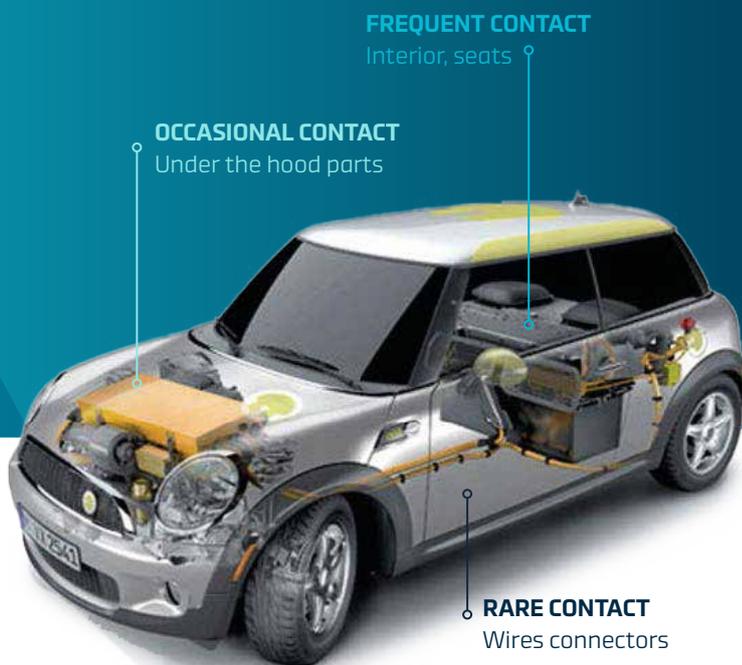
### ABOUT ICL INDUSTRIAL PRODUCTS

ICL-IP, part of the ICL group, manufactures and markets a broad range of industrial chemicals based on phosphorous, bromine, magnesium, chlorine and salts. We harness our assets and capabilities and lead in the development of innovative and creative solutions that address the essential needs of humanity in an ever changing world. science-based framework that goes beyond regulatory systems.

### HOW WE ASSESS EXPOSURE

Our exposure assessment has a two-tiered approach. We consider both:

1. The frequency of contact during the intended use (eg. TV, computer, car seats, insulation boards);
2. The potential emissions of the FR used due to either migration to surface (blooming), leaching or volatilization.



# Our story in facts



1

## OUR OBJECTIVE

helping you and your customers make informed choices



2

## WHERE WE ARE



3

## WHAT WE ACHIEVED SO FAR

### APPLICATIONS



### MATRICES



### FLAME RETARDANTS ASSESSED



### NEW PRODUCTS IN ASSESSMENT PIPELINE



4

## WHAT THEY SAY ABOUT US

Top performing in hazard and exposure assessment category

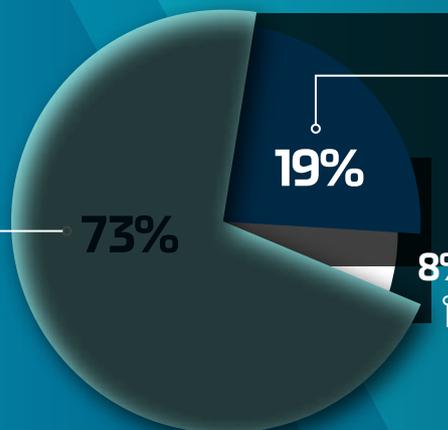


Drives alternatives assessment science by integrating exposure



## RESULTS OF OUR ICL FLAME RETARDANTS PORTFOLIO ANALYSIS:

73% SAFR® Recommended for specific applications



19% SAFR® Acceptable for specific application

8% SAFR® Non-Recommended for specific applications

ICL encourages more sustainable flame retardant solutions

find out more on our website  
[www.icl-group.com](http://www.icl-group.com)

