

## INDUSTRY CODE OF PRACTICE – SKY LANTERNS

**This Code is intended as guidance on good practice for those designing, manufacturing, distributing, retailing or using sky lanterns**

### Product scope

This code is intended for sky lanterns. The products are small hot air balloons made of paper, with an opening at the bottom where a small fire is suspended on a base framework containing an ignition source. They are intended to be launched into free flight, rising by the enclosed hot air.

They are known by a variety of names including:

Sky lanterns, Chinese lanterns (fàng tiān dēng (放天燈 or 放天灯)), Fire lanterns, Thai lanterns, Kong Ming, Khoom Fay, Khom Loi, Wish lantern, Chinese Flying Lanterns, Thai Sky Lanterns, Wedding Lanterns, Flying lanterns, Floating Lanterns, Paper lanterns, Japanese paper lanterns, Sky candles, Glow lantern, Chinese flying glowing lantern and Paper hot air balloons.

*Note:* Static paper lanterns or paper lanterns designed to float on water are not included within the scope of this Code.

### Who is this Code for?

The guidance is primarily intended for those in the supply chain such as manufacturers, importers and retailers who have a responsibility to place safe products on the market. Some parts of this guidance may also prove useful to market surveillance authorities and also to those wishing to use sky lanterns or stage events where lanterns are used.

It is applicable to products being sold or used in the United Kingdom.

### Introduction

Sky lanterns have given rise to a number of safety concerns including:

- Risks to livestock and animal health (including marine animals);
- Fire risk and damage to crops and property;
- Impact on the environment, including littering on land and at sea;
- Risks to aviation;
- Risk to coastal rescue services;
- Risk to consumer safety.

These topics are described in more detail in a 2013 report from ADAS: “*Sky lanterns and helium balloons: an assessment of impacts on livestock and the environment*”<sup>1</sup>.

It is an offence to place on the market or supply any product which is not a safe product<sup>2</sup>. Distributors have a duty to report any information about safety risks they are aware of in respect of their products and to co-operate with enforcement authorities.

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<sup>1</sup> Available from [http://randd.defra.gov.uk/Document.aspx?Document=11133\\_AC0229-DefraWAGReportFinal.pdf](http://randd.defra.gov.uk/Document.aspx?Document=11133_AC0229-DefraWAGReportFinal.pdf)

<sup>2</sup> General Product Safety Regulations 2005 (SI 1803) Part 2

This Code is intended to mitigate the risks from sky lanterns by promoting good practice in their design, manufacture and use.

It is structured in four parts:

1. Design and manufacture;
2. Safety checks;
3. Warnings and instructions for use;
4. Responsible sale.

## 1. Design and manufacture

Sky lanterns float up into the air and remain airborne for as long as they are filled with hot air. In practice, evidence suggests lanterns sometimes drift back to land whilst still alight. They should therefore be of a design and construction to ensure that they only fall back to the ground when the fuel cell flame is extinguished and that, once the lantern has landed, any impact on animals or the environment is minimised.

It is not possible to define precisely every design option and there are no national or international product standards for these items, so a risk assessment of any proposed product should be carried out before it is marketed. As a minimum, the assessment should cover consideration of design aspects relating to:

- (a) Size and shape of lantern;
- (b) Construction;
- (c) Packaging and labelling;

and more detail on this is given below. It should also include trials of the product's behaviour in practice. This assessment should be documented and supplied on request to others in the supply chain.

### (a) Size and shape of the lantern

- Very large lanterns may travel further and rise higher. The size of lanterns should therefore be limited to a maximum of 90cm in height and have a maximum diameter of 75cm.<sup>3</sup>
- The shape should be such that the flame can warm the air inside the lantern without risk of setting the paper on fire or restricting in any way the lantern's launch.
- Complex shapes and those likely to restrict air flow, such as hearts, have been known to present an increased flammability risk. Any unusual shapes should be subject to testing to assess their suitability for commercial production.

### (b) Construction

#### *Materials*

Materials used in the lanterns should not be harmful to animals or the environment and be biodegradable. In particular:

- No metal should be used in the products.
- Asbestos and other materials classified as hazardous must not be used.

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<sup>3</sup> This is consistent with recommendations from the Netherlands authorities  
<http://www.vwa.nl/onderwerpen/consumentenartikelen/dossier/wensballonnen/nieuwsoverzicht/nieuwsbericht/24841/wensballon-moet-veiliger>

- Colour – Sky lanterns should not be red or orange in colour as these may more easily be mistaken for distress flares.
- Paper used in the construction should be of sufficient thickness because very thin paper is likely to tear and does not contain the heat effectively. Paper should be a minimum of 18 gms double ply and should be rolled/dipped evenly in EU-approved fire retardant solution.
- Paper should be free of holes (including pin holes) or tears, as this can affect the performance.
- The paper should be clean and dry when packaged as dirty paper can tear during transport. It is recommended that the lanterns are packed with desiccant sachets of silica gel.
- The seams of the lantern should be well glued and not have holes or gaps. Use the minimum number of seams consistent with the design.
- Materials used in the construction of the lantern should either be flame retardant or not support combustion. Any fire retardant used should be legal for this use and will need to meet the chemical requirements of the REACH<sup>4</sup> regulations. Manufacturers, importers and others in the supply chain will need to be aware of their obligations concerning any chemicals used.

#### *Ignition source*

- The ignition source should not release burning debris when lit. Suitable designs usually incorporate paper or textile impregnated with a fuel source and do not have a separate fuel cell such as a wax block. There should be supported protection around the ignition source and the fuel cell design should be such that it prevents dripping of burning debris.
- Protection should be provided as a precaution in case an ignited lantern falls to the ground. In particular, the ignition source should be protected to reduce the risk of the lantern igniting the surface on which it lands. This may take the form of an additional wood or bamboo hoop at the base of the lantern or a protective layer suspended under the ignition source.

#### *Biodegradability*

- Materials used in the construction should be biodegradable. This may not be practical for the string used to hold the fuel cell but if biodegradable options are available they should be used. There are a number of recognised Standards for biodegradability. It is recommended that materials comply with BS EN 13432 “Packaging: requirements for packaging recoverable through composting and biodegradation”

#### (c) Packaging and labelling

- Lanterns should be sold in a fully assembled form. This reduces the risk of misassembled products being sold.
- Each lantern should be individually wrapped. The wrapper should allow the item to be stored so that the sky lantern is kept in good condition and can be easily opened up without damage.
- Each package should bear a product code and the name and address of the manufacturer - if in the EU - or importer. A retailer’s name may also be included.
- Each package must contain suitable warnings and instructions for use (see section 3 for more detail). Packaging graphics should not show any inappropriate use of the

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<sup>4</sup> [European Parliament and Council Regulation \(EC\) No 1907/2006](#) on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

product - for example use by children, use by the coast, large numbers of lanterns released simultaneously in a single location.

## 2. Safety checks

It is important that safety information is available and safety checks are carried out on each design and batch of sky lantern sold. Any distributors within the supply chain should assure themselves that the checks have been carried out by their suppliers, or they should take responsibility to undertake the checks themselves.

### Visual checks

There are recognised Standards such as ISO 2859<sup>5</sup> which describe how many products need to be evaluated to achieve a statistically valid conclusion. It may not be necessary to follow the detailed requirements but the number checked should be based on a rational risk assessment. It would be expected that more products of a new design or from a new supplier would be checked until consistent reliability has been established. The Evaluation checklist below lists aspects that should be considered in the visual checks as a minimum.

### Performance checks

It is recommended that, in addition to the visual check, simple performance checks (see Evaluation checklist below) are carried out on one sample of each design. The performance checks should be carried out by two operators to ensure that burning lanterns can be quickly extinguished. Points to note in conducting the performance checks:

- Carry out the checks in a safe place with ready access to the means to extinguish any fire;
- Light the lantern following the given instructions;
- Gently restrict the lantern to prevent it flying away (wearing protective gloves) and observe the performance of the lantern;
- Extinguish the lantern if there are safety concerns and as soon as an evaluation has been made

### Evaluation checklist

The table below indicates a suitable checklist of assessment parameters that could be used by those in the product supply chain such as manufacturers or distributors. It is not meant to be a restrictive list and users can add or modify criteria as appropriate. The table below is an example of a format that could be used to record details and be kept to confirm that products have been evaluated for safety.

	<b>Criteria</b>	<b>Add detail here</b>	<b>Satisfactory (y/n)</b>
1	<b>General</b>		
	Is a risk assessment available?		
	Does the product show manufacturer's / distributor's details?		
	Is there a product code?		
	Are warnings and instructions present and correct?		
2	<b>Documentation</b>		
	Is there a bill of materials?		
	Is there evidence of biodegradability?		

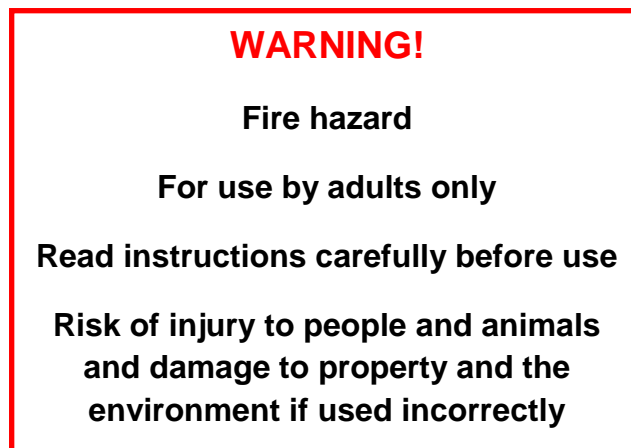
<sup>5</sup> ISO 2859 Sampling procedures for inspection by attributes: Parts 1-4

	Is there information about fire retardant used?		
3	<b>Visual checks</b>		
	Is the product clean and dry?		
	Are there any visible holes or tears?		
	Are all seams glued with no gaps?		
	Does the product match the specification – colour/ size/ shape?		
	Is the ignition source well attached?		
4	<b>Performance check</b>		
	Did the product perform as intended? (note any deviations)		
	Was there any flaming debris?		
	Did the lantern fill with hot air easily?		
	Did the flame come into contact with the material of the lantern envelope at any stage?		
	If there was any contact – does the paper burn rapidly / out of control?		

### 3. Warnings and Instructions for use

**Each Sky lantern must be accompanied by warnings and instructions for use.**

Warning notice



The warning notice should be printed in a panel at least 10cm x 15cm and be separate from any other text. The border and word “warning!” should be in red and the text should be as shown in the example above.

The warning notice should have immediate impact and be positioned prominently on the lantern packaging. It is recommended that the warning be repeated on each lantern. If possible, the warning should be printed on the lantern itself. Care should be taken that any warning notice does not increase the fire risk. Any notice not printed on the lantern itself should bear a clear instruction to remove it prior to launching.

## Instructions for use

Each and every sky lantern should be accompanied by more detailed warnings and full instructions, clearly printed in an easily legible format using at least font size 14.

Where possible pictures, diagrams etc. should be used in addition to the written text to make understanding easier. It is also helpful to refer users to a website or video link to assist their understanding.

'Instructions for use' should include at least the following :

### **READ AND FOLLOW THESE INSTRUCTIONS CAREFULLY**

#### **CAUTION**

- *This product is not suitable for children under 16 and is not a toy*
- *Do not launch whilst under the influence of alcohol*
- *Do not launch if you have any doubts about the weather conditions or the condition of the lantern*
- *Launching a lantern in an inappropriate location or unsuitable weather conditions, or in any manner that results in damage to persons or property may make you liable for criminal charges or civil claims for damages*

#### **Before launch**

- *Store lanterns in a cool dry place;*
- *Check the lantern and do not launch if any part is damaged;*
- *At launch location ensure there is access to a fire extinguisher or water nearby;*
- *Preferably launch when it is dry and the air is still. Do not launch if there is more than a very light breeze;*
- *Check the wind direction and do not launch within 30 metres of obstacles such as trees or buildings;*
- *Launch only in open spaces. Do not launch within 100 metres of crop fields, haystacks or power lines;*
- *Inform Air Traffic Control at any airfield or airport that is within 10 miles of the launch place;*
- *Avoid launching where the lantern might be mistaken for a distress signal. Inform the local Coastguard prior to launching at the coast;*
- *Launch with two people present - one to hold the lantern and one to light the fuel cell.*

#### **Launching**

- *Make sure any children are supervised and kept away from lantern or naked flame;*
- *Remove lantern from packaging and unfold it completely. Handle very carefully to avoid damage;*
- *Never tie sky lanterns together – always launch individually;*
- *Make sure the lantern is fully open and hold the top;*

- *Light the fuel cell and continue to hold as it fills with hot air. Note that it will not launch immediately;*
- *After about 1 minute, the lantern will start to rise. Once it is lifting release it and watch it rise;*
- *If the lantern fails to rise, extinguish quickly with water or fire extinguisher and do not attempt to re-use.*

#### Use at events

*In addition to the general instructions above*

- *Contact the venue before the event to establish their policy on use of sky lanterns*
- *Contact the relevant local authority, or fire and rescue service for a risk assessment on the proposed location of the launch and other advice<sup>6</sup>*
- *Confirm the weather conditions and check that the wind speed is less than 5mph. Websites such as [www.bbc.co.uk/weather](http://www.bbc.co.uk/weather) or [www.metoffice.gov.uk](http://www.metoffice.gov.uk) may be useful*
- *If in any doubt about location of the nearest airport and to inform about a launch contact the Civil Aviation Authority <http://www.caa.co.uk/docs/33/cap736.pdf>*
- *If in doubt about use near the coast check with the Marine and Coastguard Agency [www.mcga.gov.uk](http://www.mcga.gov.uk)*
- *Consider the number of lanterns being released. Large numbers of lanterns pose a litter problem that is difficult to control. Limit the use to a small number. Only a few lanterns are needed for an impressive effect.*

#### **4. Responsible sale of sky lanterns**

When used as intended in appropriate conditions and in small numbers, sky lanterns do not constitute a high risk. With a little care and consideration they can be enjoyed safely. The following guidance may be helpful to distributors and retailers:

- Consider the number of lanterns sold in a package. Items sold singly or in small numbers are preferable.
- Large orders should only be carried out with established trade users or event organisers.
- Review any complaints received and analyse the cause of the complaint. If the issue points to poor design or manufacture this may need to be discussed with the supplier with a view to potential corrective actions being taken and possible withdrawal from sale.
- The guidance in this Code of Practice is of general applicability but is intended for products being sold on the UK market. Several other countries have restrictions on the sale of these products and anyone intending to sell outside the UK is advised to check with the country of intended sale.
- Any warnings and instructions for use must be easily understood by users.
- Consider applying an age-restriction policy, e.g. photo ID age verification including prompts on EPOS systems when sky lanterns are scanned at checkouts.

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<sup>6</sup> Some local authorities do not allow sky lanterns to be used in public areas and/or land owned by the local authority