

P/N: 72003-0404

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Document identity

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Website

<http://www.flir.com>

Customer support

<http://support.flir.com>

Disclaimer

Specifications subject to change without further notice. Camera models and accessories subject to regional market considerations. License procedures may apply. Products described herein may be subject to US Export Regulations. Please refer to exportquestions@flir.com with any questions.



NOTE

Only educational institutions are eligible for purchasing this product.

Imaging and optical data

NETD	100 mK
Field of view	41° × 31°
Minimum focus distance	<ul style="list-style-type: none"> Thermal: 0.15 m (0.49 ft.) MSX: 1.0 m (3.3 ft.)
Focal length	1.54 mm (0.061 in.)
Spatial resolution (IFOV)	11 mrad
F-number	1.1
Image frequency	9 Hz
Focus	Focus free

Detector data

Focal Plane Array	Uncooled microbolometer
Spectral range	7.5–14 μm
Detector pitch	17 μm
IR sensor size	80 × 60

Image presentation

Display (color)	<ul style="list-style-type: none"> 3.0 in. 320 × 240 pixels
Display, aspect ratio	4:3
Auto orientation	Yes
Touch screen	Yes, capacitive
Image adjustment (alignment calibration)	Yes

Image presentation modes

Infrared image	Yes
Visual image	Yes
MSX	Yes
Gallery	Yes
Picture in Picture	IR area on visual image



FLIR C3 (incl. Wi-Fi) Educational Kit

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#72003-0404; r. 56430;

Measurement		
Camera temperature range	Object temperature range	Accuracy — for ambient temperature +25°C (+77°F) nominal.
-10 to +150°C (+14 to +302°F)	-10 to +100°C (+14 to +212°F)	±2°C (±3.6°F)
	+100 to +150°C (+212 to +302°F)	±2%
Measurement analysis		
Spotmeter	On/off	
Area	Box with max./min.	
Emissivity correction	Yes; matt/semi-matt/semi-glossy + custom value	
Measurements correction	<ul style="list-style-type: none"> Emissivity Reflected apparent temperature 	
Set-up		
Color palettes	<ul style="list-style-type: none"> Iron Rainbow Rainbow HC Gray 	
Set-up commands	Local adaptation of units, language, date and time formats	
Languages	Arabic, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Simpl. Chinese, Spanish, Swedish, Trad. Chinese, Turkish.	
Lamp		
Output power	0.85 W	
Field of view	60°	
Service functions		
Camera software update	Using FLIR Tools	
Storage of images		
Storage media	Internal memory store at least 500 sets of images	
Image file format	<ul style="list-style-type: none"> Standard JPEG 14-bit measurement data included 	
Video streaming		
Non-radiometric IR video streaming	Yes	
Visual video streaming	Yes	
Digital camera		
Digital camera	640 × 480 pixels	
Digital camera, focus	Fixed focus	
Data communication interfaces		
Wi-Fi	Peer-to-peer (ad hoc) or infrastructure (network)	
USB, connector type	USB Micro-B: Data transfer to and from PC	
USB, standard	USB 2.0	



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Radio	
Wi-Fi	<ul style="list-style-type: none"> • Standard: 802.11 b/g/n • Frequency range: <ul style="list-style-type: none"> ◦ 2400–2480 MHz ◦ 5150–5260 MHz • Max. output power: 15 dBm

Power system	
Battery type	Rechargeable Li-ion polymer battery
Battery voltage	3.7 V
Battery operating time	2 h
Charging system	Charged inside the camera
Charging time	1.5 h
External power operation	<ul style="list-style-type: none"> • AC adapter, 90–260 VAC input • 5 V output to camera
Power management	Automatic shut-down

Environmental data	
Operating temperature range	–10°C to +50°C (14 to 122°F)
Storage temperature range	–40°C to +70°C (–40 to 158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) / 2 cycles
Relative humidity	95% relative humidity +25°C to +40°C (+77°F to +104°F) non condensing
EMC	<ul style="list-style-type: none"> • WEEE 2012/19/EC • RoHs 2011/65/EC • C-Tick • EN 61000-6-3 • EN 61000-6-2 • FCC 47 CFR Part 15 Class B
Radio spectrum	<ul style="list-style-type: none"> • ETSI EN 300 328 • FCC 47 CSR Part 15 • RSS-247 Issue 2
Magnetic fields	EN 61000-4-8
Battery regulations	UL 1642
Encapsulation	Camera housing and lens: IP 40 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Drop	2 m (6.6 ft.)

Physical data	
Weight (incl. Battery)	0.13 kg (0.29 lb.)
Size (L × W × H)	125 × 80 × 24 mm (4.9 × 3.1 × 0.94 in.)
Tripod mounting	No
Housing material	<ul style="list-style-type: none"> • PC and ABS, partially covered with TPE • Aluminum
Color	Black and gray



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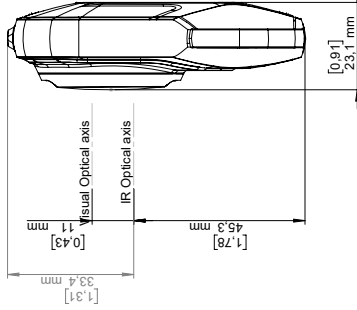
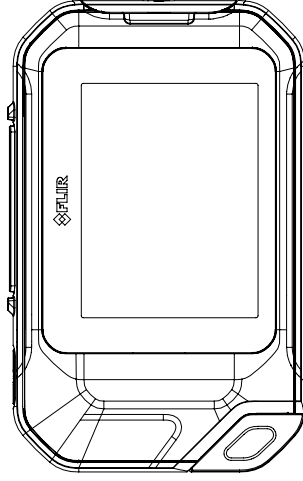
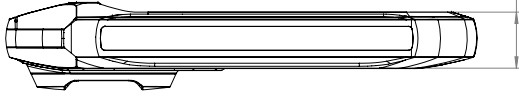
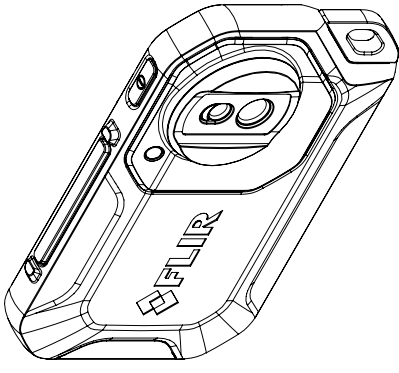
#72003-0404; r. 56430;

Shipping information	
Packaging, type	Cardboard box
List of contents	<ul style="list-style-type: none">• FLIR C3 educational kit card with download links for FLIR Tools+, FLIR ResearchIR Standard (incl. printed license key), and educational resources.• Infrared camera• Lanyard• Pouch• Power supply/charger with EU, UK, US, CN and Australian plugs• Printed documentation• Tripod mount• USB cable
Packaging, weight	TBD
Packaging, size	175 × 110 × 105 mm (6.9 × 4.3 × 4.1 in.)
EAN-13	4743254002852
UPC-12	845188014100
Country of origin	Estonia

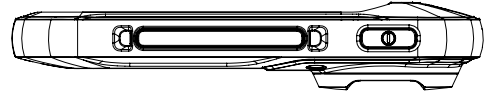
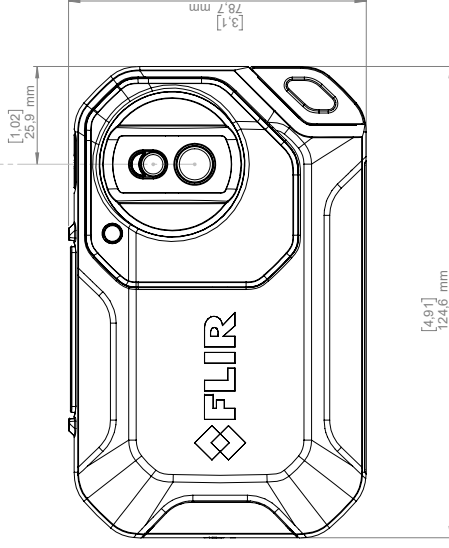
Supplies & accessories:

- T198532; Car charger
- T198534; Power supply USB-micro
- T198533; USB cable Std A <-> Micro B
- T199564; Tripod adapter
- T130129ACC; Pouch
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- T300083; FLIR Thermal Studio (incl. license key/QR code)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB
- 4220499; FLIR Research Studio - 1 Year Subscription (online activation)
- 4220500; FLIR Research Studio - Perpetual License (online activation)
- 4220646; FLIR Research Studio - Perpetual License (USB dongle)
- INST-EW-0100; Extended Warranty 1 Year for C2, C3
- INST-EWGM-0100; Premium Service Package for C2, C3
- INST-GM-0100; General Maintenance Package for C2, C3

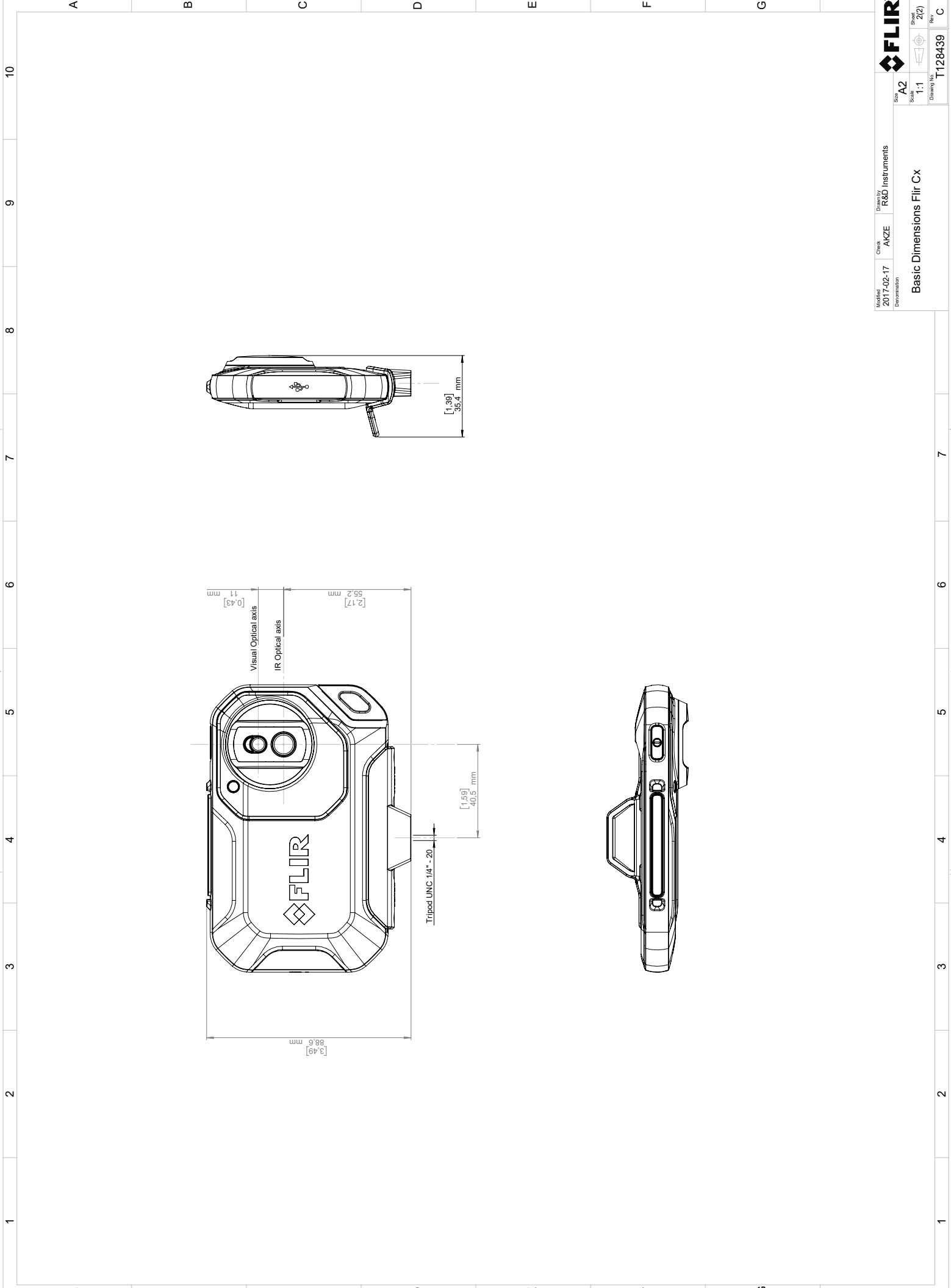
Camera with build-in IR lens f=1,54mm

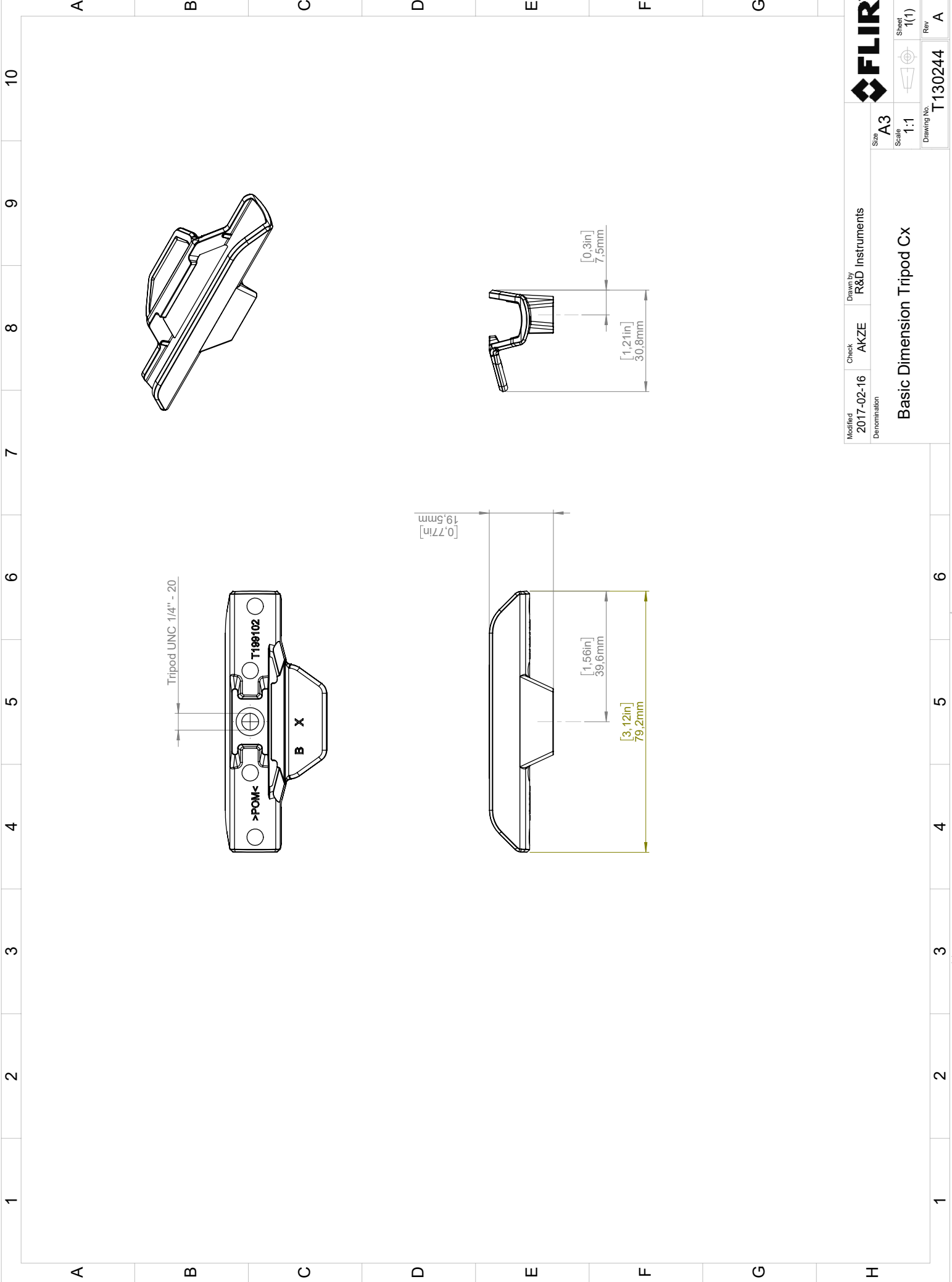


Optical axis



Modified 2017-02-17	Check AKZE	Drawn by R&D Thermography	Size A2	Sheet 1(2)
Denomination Basic Dimensions Flir Cx			Scale 1:1	Drawing No. T128439





Modified 2017-02-16 Denomination	Check AKZE	Drawn by R&D Instruments	FLIR
Basic Dimension Tripod Cx			Sheet 1(1)
Size A3			Rev A
Scale 1:1			Drawing No T130244



The World's Sixth Sense™

October 31, 2018 Täby, Sweden

AQ320279

CE Declaration of Conformity – EU Declaration of Conformity

Product: FLIR C3-series

Name and address of the manufacturer:

FLIR Systems AB
PO Box 7376
SE-187 15 Täby, Sweden

This declaration of conformity is issued under the sole responsibility of the manufacturer.

The object of the declaration: FLIR C3 -series (Product Model Name FLIR-C7200)

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Directives:

Directive	2012/19/EU	Waste electrical and electric equipment
Directive:	2011/65/EU	RoHS
Directive	2014/53/EU	Radio Equipment Directive (RED)

Standards:

EMC:	ETSI EN 301 489-1 v1.9.2	EMC and ERM Common Reqs
	ETSI EN 301 489-17 v2.2.1	Broadband data transmission systems
Restricted substances (RoHS):	EN 50581:2012	Technical documentation
Radio:	ETSI EN 300 328 v2.1.1	Harmonized EN covering essential OK requirements of the RED/R&TTEE OK
	ETSI EN 301 893 v1.8.1	Peak Spatial-Average Absorption rates
SAR:	IEEE 1528-2013 2013-06	Compliance radio communication OK
	RSS-102 Iss 5	

FLIR Systems AB

Quality Assurance

Lea Dabiri
Quality Manager

Material Safety Data Sheet

MSDS No.: 2019010209

Updated Date: 2019/Jan

1. Product and Company Identification

Important Note: As a solid, manufactured article, exposure to hazardous ingredients is not expected with normal use. This battery is an article pursuant to 29 CFR 1910.1200 and, as such, is not subject to the OSHA Hazard Communication Standard requirement. The information contained in this Material Safety Data Sheet contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Commercial product name

LI-ION RECHARGE BATTERY

Use of the substance/preparation

Lithium-Ion battery

Manufacturer

Celltech (Zhongshan) Ltd.

Address

4th Floor, Building 3 / No. 6 Jiusha Road / Torch Development District / Zhongshan / China

Company/undertaking identification

Emergency Contact (CHEMTREC)

+86-760-87365930

Further Information

Battery-System: Lithium-Ion (Li-ion)

Nominal Voltage: 3.7V

Rated Capacity: 1Ah

Wh rating: 3.7Wh

Anode (negative electrode): based on intercalation graphite

Cathode (positive electrode): based on lithiated metal oxide (Cobalt, Nickel, Manganese)

Remark:

The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. Celltech (Zhongshan) Ltd. makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.

2. Hazards Identification

Route(s) of Entry

There is no hazard when the measures for handling and storage are followed.

Signs and Symptoms of Exposure

In case of cell damage, possible release of dangerous substances and a flammable gas mixture.

OSHA Hazard Communication: This material is not considered hazardous by the OSHA Communication Standard 29CFR 1910.1200.

Hazard

Carcinogenicity (NTP): Not listed
 Carcinogenicity (IARC): Not listed
 Carcinogenicity (OSHA): Not listed

Special hazards for human health and environment

There is no hazard when the measures for handling and storage are followed.

In case of cell damage, possible release of dangerous substances and a flammable gas mixture.

Explication of special hazards for human health and environment

Not classified as dangerous according to directive 1999/45/EEC

There is no hazard when the measures for handling and storage are followed.

In case of cell damage, possible release of dangerous substances and a flammable gas mixture.

3. Composition/information on ingredients

Hazardous components

CAS-No.	Chemical name	Quantity
1307-96-6	Lithium Cobalt oxide	< 30 %
1313-13-9	Manganese dioxide	< 30 %
1313-99-1	Nickel oxide	< 30 %
7440-44-0	Carbon	< 30 %
	Electrolyte (*)	< 20 %
24937-79-9	Polyvinylidene fluoride (PVdF)	< 10 %
7429-90-5	Aluminium foil	2 - 10 %
7440-50-8	Copper foil	2 - 10 %
	Aluminium and inert materials	5 - 10 %

Further Information

For information purposes:

(*) Main ingredients: Lithium hexafluorophosphate, organic carbonates

Because of the cell structure the dangerous ingredients will not be available if used properly. During charge process a lithium graphite intercalation phase is formed.

Mercury content: Hg < 0.1mg/kg

Cadmium content: Cd < 1mg/kg

Lead content: Pb < 10mg/kg

4. First Aid Measures

General information

The following first aid measures are required only in case of exposure to interior battery components after damage of the external battery casing.

Undamaged, closed cells do not represent a danger to the health.

After inhalation

Ensure of fresh air. Consult a physician.

After contact with skin

In case of contact with skin wash off immediately with plenty of water.

Consult a physician.

After contact with eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Seek medical treatment by eye specialist.

After ingestion

Drink plenty of water.

Call a physician immediately.

5. Fire Fighting Measures

Suitable extinguishing media

Cold water and dry powder in large amount are applicable.

Use metal fire extinction powder or dry sand if only few cells are involved.

Special hazards arising from the chemical

May form hydrofluoric acid if electrolyte comes into contact with water.

In case of fire, the formation of the following flue gases cannot be excluded: Hydrogen fluoride (HF), Carbon monoxide and carbon dioxide.

Protective equipment and precautions for firefighters

Wear self-contained breathing apparatus and protective suit. Additional information

If possible, remove cell(s) from fire fighting area. If heated above 125°C, cell(s) can explode/vent. Cell is not flammable but internal organic material will burn if the cell is incinerated.

6. Accidental Release Measures

Personal precautions

Use personal protective clothing.

Avoid contact with skin, eyes and clothing. Avoid breathing fume and gas.

Environmental precautions

Do not discharge into the drains/surface waters/groundwater. Methods for cleaning up/taking up

Take up mechanically and send for disposal.

7. Handling and Storage

Handling

Advice on safe handling

Avoid short circuiting the cell. Avoid mechanical damage of the cell. Do not open or disassemble. Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage rooms and vessels

Storage at room temperature (approx. 20°C) at humidity approx. 60% of the nominal capacity.

Keep in closed original container.

8. Exposure controls/personal protection Exposure limit values Exposure limits

Ingredient	Risk Codes	Safety Description	Hazard	Exposure Controls/Personal Protection
Lithium Cobalt oxide	R22;R43; R50/53	S24; S37; S60; S61	Xn(Harmful) N (Dangerous for the environment)	0.1 mg/m3 (TWA)
Manganese (VI) oxide	R20/22	S25	Xn(Harmful)	Airborne Exposure Limits: - OSHA Permissible Exposure Limit (PEL): 5 mg/m3 Ceiling for manganese compounds as Mn - ACGIH Threshold Limit Value (TLV): 0.2 mg/m3 (TWA) for manganese, elemental and inorganic compounds as Mn
Nickel oxide	R43,R49, R53 R36/37/38	S45,S53,S61	T(Toxic)	Airborne Exposure Limits: For Nickel, Metal and Insoluble Compounds, as Ni: - OSHA Permissible Exposure Limits (PEL) - 1 mg/m3 (TWA). For Nickel, Elemental / Metal: - ACGIH Threshold Limit Value (TLV) - 1.5 mg/m3 (TWA), A5 - Not suspected as a human carcinogen. For Nickel, Insoluble Compounds, as Ni: - ACGIH Threshold Limit Value (TLV) - 0.2 mg/m3 (TWA), A1 - Confirmed human carcinogen
Carbon	R36/37 R20, R10	S22; S24/25	F(Highly Flammable) , Xn(Harmful) Xi(Irritant)	Airborne Exposure Limits: - OSHA Permissible Exposure Limits (PELs): activated carbon (graphite, synthetic): Total particulate = 15 mg/m3

Aluminium foil	R17,R15, R36/38, R10,R67, R65,R62, R51/53, R48/20, R38,R11,	S7/8,S43,S26,S62 ,S61, S36/37, S33, S29, S16, S9	F(Highly Flammable) Xn(Harmful) Xi(Irritant)	Airborne Exposure Limits: -OSHA Permissible Exposure Limit (PEL): 15 mg/m3 (TWA) total dust and 5 mg/m3 (TWA) Repairable fraction for Aluminum metal as Al -ACGIH Threshold Limit Value (TLV): 10 mg/m3 (TWA) Aluminum metal dusts
Copper foil	R11 R36 R37 R38	S5, S26, S16, S61, S36/37	F(Highly Flammable) N(Dangerous for the environment) Xn(Harmful) Xi(Irritant)	Copper Dust and Mists, as Cu: - OSHA Permissible Exposure Limit (PEL) - 1 mg/m3 (TWA) - ACGIH Threshold Limit Value (TLV) - 1 mg/m3 (TWA) Copper Fume: - OSHA Permissible Exposure Limit (PEL) - 0.1 mg/m3 (TWA) - ACGIH Threshold Limit Value (TLV) - 0.2 mg/m3 (TWA)
Polyvinylidene fluoride (PVdF)		S22;S24/25		

Full text of each relevant R phrase can be found in heading 16.

Additional advice on limit values

During normal charging and discharging there is no release of product.

Occupational exposure controls

No specific precautions necessary.

Protective and hygiene measures

When using do not eat, drink or smoke. Wash hands before breaks and after work.

Respiratory protection

No specific precautions necessary.

Hand protection

No specific precautions necessary.

Eye protection

No specific precautions necessary.

Skin protection

No specific precautions necessary.

9. Physical and Chemical Properties

Appearance

Form: Solid

Color: Various

Odor: Odourless

Important health, safety and environmental information

Test method

PH Value:	n.a.
Flash point:	n.a.
Lower explosion limits:	n.a.
Vapour pressure:	n.a.
Density:	n.a.
Water solubility:	Insoluble
Ignition temperature:	n.a.

10. Stability and Reactivity USA, EU

Stability

Stable

Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Do not puncture, crush or incinerate.

Materials to avoid

No materials to be especially mentioned.

Hazardous decomposition products

In case of open cells, there is the possibility of hydrofluoric acid and carbon monoxide release.

Possibility of Hazardous Reactions

Will not occur

Additional information

No decomposition if stored and applied as directed.

11. Toxicological Information

Empirical data on effects on humans

If appropriately handled and if in accordance with the general hygienic rules, no damages to health have become known.

12. Ecological Information

Further information

Ecological injuries are not known or expected under normal use. Do not flush into surface water or sanitary sewer system.

13. Disposal Considerations

Advice on disposal

For recycling consult manufacturer.

Contaminated packaging
Disposal in accordance with local regulations.

14. Transport Information

The rechargeable Lithium-Ion battery pack as stated in Appendix are made in compliance to the requirements stated in the latest edition of the IATA Dangerous Goods Regulations Packing Instruction 965 section IB such that they can be transported as dangerous goods. However, if those lithium-ion battery packs are pack with or contained in an equipment, then it is the responsibility of the shipper to ensure that the consignment are packed in compliance to the 60th edition of the IATA Dangerous Goods Regulations section II of Packing Instruction 966 or 967 in order for that consignment to be declared as Non Dangerous Goods.

With regard to transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions (2019-2020 Edition),
- The International Air Transport Association (IATA) Dangerous Goods Regulations (60th Edition, 2019)
- The International Maritime Dangerous Goods (IMDG) Code (2016 Edition, IMDG 37-14 Edition, Special Provision 188),
- US Hazardous Materials Regulations 49 CFR (Code of Federal Regulations)
Sections 173.185 Lithium batteries and cells,
- The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria
38.3 Lithium batteries, 6th revised edition
- UN No. 3480

Our products are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to all the applicable international and national governmental regulations, not limited to the above mentioned. We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1 - T8) on the Transport of Dangerous Goods Model Regulations and the Manual of Testes and Criteria that can be treated as “**Dangerous Goods**”.

Test results of the UN Recommendation on the Transport of Dangerous Goods			
Manual of Test and Criteria (38.3 Lithium battery)		Test Results	Remark
No	Test item		
T1	Altitude Simulation	Pass	
T2	Thermal Test	Pass	
T3	Vibration	Pass	
T4	Shock	Pass	
T5	External Short Circuit	Pass	
T6	Impact	Pass	
T7	Overcharge	Pass	For pack only
T8	Forced Discharge	Pass	For cell only

The Batteries are protected so as to prevent short circuits including protection against contact with conductive materials Within the same packaging that could lead to a short circuit. The Batteries have been packed according to PI965, Section **IB** of the current 60th edition of the IATA Dangerous Goods Regulations 2019, therefore they can be carried as **Dangerous Goods**.

The outer packaging has been tested to protect the lithium batteries from damage caused by falling from a height of up to 1.2m. The Batteries have been tested to the safety standards of the UN Manual of Tests and Criteria, Part III, Subsection 38.3.

15. Regulatory Information U.S.**Regulations**

National Inventory TSCA

All of the components are listed on the TSCA inventory.

SARA

To the best of our knowledge this product contains no toxic chemicals subject to the supplier notification requirements of Section 313 of the Superfund Amendments and Reauthorization Act (SARA/EPCRA) and the requirements of 40 CFR Part 372.

16. Regulatory information EU**Labeling**

Hazardous components which must be listed on the label

As an article the product does not need to be labeled in accordance with EC directives or respective national laws.

EU regulatory information

1999/13/EC (VOC): 0 %

17. Other Information

Hazardous Materials Information Label (HMIS)

Health: 0

Flammability: 0

Physical Hazard: 0

NFPA Hazard Ratings

Health: 0

Flammability: 0

Reactivity: 0

Unique Hazard:

Full text of R-phrases referred to under sections 2 and 3

R10	Flammable.
R20/22	Harmful by inhalation and if swallowed.
R22	Harmful if swallowed.
R34	Causes burns.
R40	Limited evidence of a carcinogenic effect.
R43	May cause sensitization by skin contact.
R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R49	May cause cancer by inhalation.
R50	Very toxic to aquatic organisms.
R53	May cause long-term adverse effects in the aquatic environment.

Further Information

Data of sections 4 to 8, as well as 10 to 12, do not necessarily refer to the use and the regular handling of the product (in this sense consult package leaflet and expert information), but to release of major amounts in case of accidents and irregularities. The information describes exclusively the safety requirements for the product

(s) And is based on the present level of our knowledge. This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations. "(n.a. = not applicable; n.d. = not determined)"

The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.