

---

SAFETY DATA SHEET

---

---

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

---

## 1.1 Product identifier

Product Name: SWARCO PRIMER Roll 100

Contains n-butyl acetate

## 1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture: Thermoplastic road markings.  
For industrial/professional use only.

Use advised against: No information available

## 1.3 Details of the supplier of the safety data sheet

Name of Supplier: SWARCO HITEX LTD

Address of Supplier: 4 Cloister Way  
Ellesmere Port  
Cheshire  
CH65 4E  
UK

Telephone: +44 (0)151-355 4100

Website: swarco.com/rms

Email: info.hitex@swarco.com

## 1.4 Emergency telephone number

Emergency Telephone: +44(0) 151 355 4100

Hours of operation: 08.00 to 17.00 GMT

For medical advice or information contact your GP or dial 111 for 24-hour health advice (England – NHS 111, Scotland – NHS 24 111, Wales – NHS 111 Wales, Northern Ireland – NHS 111 Northern Ireland).

---

**SECTION 2: Hazards identification**

---

## 2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) [CLP/GHS]: Flam. Liq. 3, H226; STOT SE 3, H336; EUH066

Additional information: For full text of Hazard and EU Hazard statements: see section 16

## 2.2 Label elements



Signal Word: Warning

## Hazard statements

H226 - Flammable liquid and vapour.

H336 - May cause drowsiness or dizziness.

## Precautionary statements

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261 - Avoid breathing fume/vapours

---

**SECTION 2: Hazards identification (....)**

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P312 - Call a POISON CENTRE or doctor if you feel unwell.

P403+P235 - Store in a well-ventilated place. Keep cool.

P501 - Dispose of contents/container to an authorised waste collection point

Supplemental Hazard information (EU)

EUH066 - Repeated exposure may cause skin dryness or cracking.

**2.3 Other hazards**

Not a PBT according to REACH Annex XIII

Not a vPvB according to REACH Annex XIII

Does not contain any substances with endocrine disrupting properties

---

**SECTION 3: Composition/information on ingredients****3.1 Substances**

Not applicable

**3.2 Mixtures**

Contains the following hazardous ingredients or ingredients with a workplace exposure limit:

Chemical Name	Conc.	CAS No.	EC No.	Classification (REGULATION (EC) No 1272/2008) [CLP/GHS]	REACH Registration Number	SCL/ M-Factor/ ATE	WEL/ OEL
n-Butyl acetate	≥ 60%	123-86-4	204-658-1	Flam. Liq. 3, H226 STOT SE 3, H336 EUH066	-	-	Yes

---

**SECTION 4: First aid measures**

No action shall be taken involving any personal risk or without suitable training

Rescuers should put on approved personal protective equipment (PPE) before administering first aid

**4.1 Description of first aid measures****Contact with eyes**

If substance has got into eyes, immediately wash out with plenty of water for at least 15 minutes

Irrigate eyes thoroughly whilst lifting eyelids

Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

**Contact with skin**

After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of soap and water

Take off contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

**Ingestion**

Rinse mouth.

Give plenty of water to drink

Never give anything by mouth to an unconscious person

IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

---

---

**SECTION 4: First aid measures (....)****Inhalation**

Remove person to fresh air and keep comfortable for breathing.  
Keep warm and at rest, in a half upright position. Loosen clothing  
Apply artificial respiration only if patient is not breathing but do not use mouth to mouth resuscitation  
If breathing is difficult, oxygen should be given by a trained person  
Get medical advice/attention.

**4.2 Most important symptoms and effects, both acute and delayed****Contact with eyes**

May cause redness and irritation

**Contact with skin**

May cause redness and irritation  
Repeated exposure may cause skin dryness or cracking

**Ingestion**

May cause gastro-intestinal irritation  
May cause nausea/vomiting

**Inhalation**

Vapours may cause drowsiness and dizziness  
May cause headache

**4.3 Indication of any immediate medical attention and special treatment needed**

Treat symptomatically

---

**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media: alcohol resistant foam; dry powder; carbon dioxide; water spray; water fog; sand/earth

Unsuitable extinguishing media: high volume water jet

**5.2 Special hazards arising from the substance or mixture**

Flammable liquid and vapour.

In a fire or if heated, a pressure increase will occur and the container may burst

May form explosive vapour/air mixtures

Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback

Gives off irritating or toxic fumes (or gases) in a fire.

Decomposition products may include hydrocarbons

Decomposition products may include carbon oxides

**5.3 Advice for firefighters**

Evacuate the area and keep personnel upwind

Keep container(s) exposed to fire cool, by spraying with water

Collect contaminated fire extinguishing water separately. This MUST not be discharged into drains.  
Prevent fire extinguishing water from contaminating surface or ground water.

Special protective equipment: Wear self-contained breathing apparatus (SCBA). Wear full protective

---

**SECTION 5: Firefighting measures (....)**

clothing including chemical protection suit.

---

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Rescuers should take suitable precautions to avoid becoming casualties themselves

No action shall be taken involving any personal risk or without suitable training

Personal precautions for non-emergency personnel: Avoid breathing vapours, mist or gas; Avoid contact with skin and eyes; Wear protective clothing as per section 8; Wash thoroughly after handling.

Personal precautions for emergency responders: Evacuate the area and keep personnel upwind; Wear self-contained breathing apparatus (SCBA); Wear chemical protection suit; Butyl rubber or nitrile rubber are recommended; Wash thoroughly after dealing with spillage

**6.2 Environmental precautions**

Do not allow to enter public sewers and watercourses

If polluted water reaches drainage systems or water courses, immediately inform appropriate authorities

**6.3 Methods and material for containment and cleaning up**

Stop leak if safe to do so.

Do not allow to enter public sewers and watercourses

Shut off all ignition sources

Use non-sparking tools.

Take action to prevent static discharges.

Use explosion-proof electrical equipment.

**Small spills**

Wipe up spillage with damp absorbent cloth or towel

Place in appropriate container

Remove contaminated material to safe location for subsequent disposal

Wash spill site with water and detergent

Wash thoroughly after dealing with spillage

**Large spills**

Absorb spillage in suitable inert material

Place in appropriate container

Seal containers and label them

Remove contaminated material to safe location for subsequent disposal

To be disposed of as hazardous waste

Seek expert advice for removal and disposal of all contaminated materials and wastes

Wash thoroughly after dealing with spillage

**6.4 Reference to other sections**

See section(s): 7, 8 & 13

---

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Ensure adequate ventilation

---

---

**SECTION 7: Handling and storage (....)**

Use local exhaust ventilation and/or enclosures.

Use non-sparking handtools

Use explosion-proof equipment.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Wear protective clothing as per section 8

Use good personal hygiene practices

Do not eat, drink or smoke when using this product.

Wash thoroughly after handling.

Take off contaminated clothing.

Contaminated clothing should be laundered before reuse

Eyewash bottles should be available

**7.2 Conditions for safe storage, including any incompatibilities**

Store in a cool, dry well-ventilated place. Keep container tightly closed.

Keep away from food, drink and animal feedingstuffs

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Keep in highly flammable materials store

Incompatible with strong acids

Keep away from alkalis (strong bases)

Incompatible with strong oxidizing substances

**7.3 Specific end use(s)**

A clear liquid tack coat primer designed for the adhesion of thermoplastic road markings onto non bituminous substrates.

---

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters**

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace exposure - Measurement of exposure by inhalation to chemical agents - Strategy for testing compliance with occupational exposure limit values). European Standard EN 14042 (Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents). European Standard EN 482 (Workplace exposure. General requirements for the performance of procedures for the measurement of chemical agents). Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**n-Butyl acetate**

(EU) IOELV (long term TWA) 50 ppm 241 mg/m<sup>3</sup>

(EU) IOELV (short term limit value) 150 ppm 723 mg/m<sup>3</sup>

WEL (long term) 150 ppm 724 mg/m<sup>3</sup> (UK)

WEL (short term limit value) 200 ppm 966 mg/m<sup>3</sup> (UK)

DNEL (inhalational) 48 mg/m<sup>3</sup> Industry, Long Term, Systemic Effects

DNEL (inhalational) 600 mg/m<sup>3</sup> Industry, Acute/Short Term, Systemic Effects

DNEL (inhalational) 300 mg/m<sup>3</sup> Industry, Long Term, Local Effects

DNEL (inhalational) 600 mg/m<sup>3</sup> Industry, Acute/Short Term, Local Effects

**SECTION 8: Exposure controls/personal protection (....)**

DNEL (dermal) 7 mg/kg bw/day Industry, Long Term, Systemic Effects  
DNEL (dermal) 11 mg/kg bw/day Industry, Acute/Short Term, Systemic Effects  
DNEL (inhalational) 12 mg/m<sup>3</sup> Consumer, Long Term, Systemic Effects  
DNEL (inhalational) 300 mg/m<sup>3</sup> Consumer, Acute/Short Term, Systemic Effects  
DNEL (inhalational) 35.7 mg/m<sup>3</sup> Consumer, Long Term, Local Effects  
DNEL (inhalational) 300 mg/m<sup>3</sup> Consumer, Acute/Short Term, Local Effects  
DNEL (dermal) 3.4 mg/kg bw/day Consumer, Long Term, Systemic Effects  
DNEL (dermal) 6 mg/kg bw/day Consumer, Acute/Short Term, Systemic Effects  
DNEL (oral) 2 mg/kg bw/day Consumer, Long Term, Systemic Effects  
DNEL (oral) 2 mg/kg bw/day Consumer, Acute/Short Term, Systemic Effects  
PNEC aqua (freshwater) 180 µg/L  
PNEC aqua (intermittent releases, freshwater) 360 µg/L  
PNEC aqua (marine water) 18 µg/L  
PNEC (STP) 35.6 mg/L  
PNEC sediment (freshwater) 981 µg/kg  
PNEC sediment (marine water) 98.1 µg/kg  
PNEC terrestrial (soil) 90.3 µg/kg

**8.2 Exposure controls**

Selection and use of personal protective equipment should be based on a risk assessment of exposure potential

**Engineering controls**

Engineering controls should be provided to prevent the need for ventilation  
Use local exhaust ventilation and/or enclosures.  
Use explosion-proof ventilating and lighting equipment.

**Respiratory protection**

In case of insufficient ventilation, wear suitable respiratory equipment  
Where a reusable half mask respirator is required, use EN 140, with gas/vapour filter EN 14387 type ABEK, or EN 405; EN 1827  
Where a full face mask respirator is required, use EN 136, with gas/vapour filter EN 14387 type ABEK

**Skin protection**

Wear suitable protective clothing  
Wear protective gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and standard EN 374.  
The selection of a suitable glove depends on work conditions and whether the product is present on its own or in combination with other substances. Breakthrough time is dependent on the characteristics of the brand of glove used and the supplier should be consulted.  
Butyl rubber or nitrile rubber are recommended

**Eye/face protection**

Wear goggles giving complete eye protection approved to standard EN 166.  
If risk of splashing, wear face-shield approved to standard EN 166 1B39N

**Thermal hazards**

Not applicable

**Hygiene measures**

Do not eat, drink or smoke when using this product.  
Contaminated clothing should be laundered before reuse  
Use good personal hygiene practices  
Wash thoroughly after handling.  
Eyewash bottles should be available

**Environmental exposure controls**

Avoid release to the environment.  
Do not allow to penetrate the ground/soil.

**SECTION 8: Exposure controls/personal protection (....)**

Do not empty into drains

**SECTION 9: Physical and chemical properties**

## 9.1 Information on basic physical and chemical properties

Physical state:	Liquid, semi-viscous
Colour:	Clear and colourless
Odour:	Sweet-smelling
Odour threshold:	7 - 20 ppm (n-butyl acetate)
Melting point/freezing point:	-90 °C (n-butyl acetate)
Boiling point or initial boiling point and boiling range:	126 °C (n-butyl acetate)
Flammability:	Flammable liquid and vapour
Lower and upper explosion limit:	Lower explosive limit: (n-butyl acetate) 1.7% (in air); Upper explosive limit: (n-butyl acetate) 7.6% (in air)
Flash point:	27 °C (n-butyl acetate)
Auto-ignition temperature:	415 °C (n-butyl acetate)
Decomposition temperature:	No data available
pH:	Not applicable
Kinematic viscosity:	(Dynamic) 160 cP @ 20 °C
Solubility:	Solubility in water: 5.3 - 14 g/L @ 20 °C (n-butyl acetate)
Partition coefficient n-octanol/water (log value):	1.82 - 2.3 @ 25 °C (n-butyl acetate)
Vapour pressure:	11.2 - 16 hPa @ 20 °C (n-butyl acetate)
Density and/or relative density:	0.879 - 0.881 @ 20 °C (n-butyl acetate)
Relative vapour density:	4 (n-butyl acetate)
Particle characteristics:	Not applicable

## 9.2 Other information

No information available

**SECTION 10: Stability and reactivity**

## 10.1 Reactivity

Considered stable under normal conditions

## 10.2 Chemical stability

Considered stable under normal conditions

## 10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur under normal conditions of storage and use

May form explosive vapour/air mixtures

## 10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

## 10.5 Incompatible materials



**SECTION 10: Stability and reactivity (....)**

Incompatible with strong acids

Incompatible with alkalis (strong bases)

Incompatible with strong oxidizing substances

**10.6 Hazardous decomposition products**

Decomposition products may include hydrocarbons

Decomposition products may include carbon oxides

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute Toxicity**

Based on the available data, the classification criteria are not met

**Substances**

Chemical Name	LD <sub>50</sub> (oral, rat)	LC <sub>50</sub> (inhalation, rat)	LD <sub>50</sub> (dermal, rabbit)
n-Butyl acetate	10 768 mg/kg	(4 h) 390 ppm	17 600 mg/kg

**Skin corrosion/irritation**

Based on the available data, the classification criteria are not met

**Substances**

Chemical Name	Irritation/corrosion
n-Butyl acetate	No adverse effect observed (not irritating)

**Serious eye damage/irritation**

Based on the available data, the classification criteria are not met

**Substances**

Chemical Name	Irritation/corrosion
n-Butyl acetate	No adverse effect observed (not irritating)

**Respiratory or skin sensitisation**

Based on the available data, the classification criteria are not met

**Substances**

Chemical Name	Skin sensitisation	Respiratory sensitisation
n-Butyl acetate	No adverse effect observed (not sensitising)	No study available

**Germ cell mutagenicity**

Based on the available data, the classification criteria are not met

**Substances**

Chemical Name	Toxicity - In Vitro	Toxicity - In Vivo
n-Butyl acetate	No adverse effect observed (negative)	No data available

**Carcinogenicity**

Based on available data, the classification criteria are not met



**SECTION 11: Toxicological information (....)**

None of the components of the product/mixture present at levels greater than or equal to 0.1% are listed by NTP, IARC, ACGIH or OSHA as a carcinogen.

**Substances**

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
n-Butyl acetate	No data available	No data available	No data available

**Reproductive toxicity**

Based on the available data, the classification criteria are not met

**Substances**

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
n-Butyl acetate	No data available	9 640 mg/m <sup>3</sup> (Effect on fertility) 7 230 mg/m <sup>3</sup> (Effect on developmental toxicity)	No data available

**Specific target organ toxicity (STOT) - single exposure**

Has central nervous system effects

May cause drowsiness or dizziness.

Classification based on calculation and concentration thresholds

**Substances**

Chemical Name	Route	Remarks
n-Butyl acetate	Respiratory	No adverse effect observed (not irritating) May cause drowsiness or dizziness.

**Specific target organ toxicity (STOT) - repeated exposure**

Based on the available data, the classification criteria are not met

**Substances**

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
n-Butyl acetate	196 mg/kg bw/day	2 400 mg/m <sup>3</sup> 500 ppm	No data available

**Aspiration hazard**

Based on the available data, the classification criteria are not met

**Contact with eyes**

May cause redness and irritation

**Contact with skin**

May cause redness and irritation

Repeated exposure may cause skin dryness or cracking

**Ingestion**

May cause gastro-intestinal irritation

May cause nausea/vomiting

**Inhalation**

Vapours may cause drowsiness and dizziness

May cause headache

**11.2 Information on other hazards**

Does not contain any substances with endocrine disrupting properties

---

**SECTION 11: Toxicological information (....)**

---

---

**SECTION 12: Ecological information**

---

**12.1 Toxicity**

Based on available data, the classification criteria are not met

**Substances**

Chemical Name	LC <sub>50</sub> (fish)	EC <sub>50</sub> (aquatic invertebrates)	EC <sub>50</sub> (aquatic algae)
n-Butyl acetate	(4 days) 17 - 19 mg/L	(24 h) 72.8 mg/L (48 h) 32 - 44 mg/L	(72 h) 674.7 mg/L

**12.2 Persistence and degradability**

Volatile portion is biodegradable

**Substances**

Chemical Name	Biodegradation
n-Butyl acetate	Readily biodegradable (100%)

**12.3 Bioaccumulative potential**

Low bioaccumulation potential

**Substances**

Chemical Name	Bioconcentration Factor (BCF)	Log Kow
n-Butyl acetate	15 (dimensionless)	1.82 - 2.3 @ 25 °C

**12.4 Mobility in soil**

Low potential for adsorption

**Substances**

Chemical Name	Adsorption/desorption
n-Butyl acetate	Low potential for adsorption

**12.5 Results of PBT and vPvB assessment**

Not a PBT according to REACH Annex XIII

Not a vPvB according to REACH Annex XIII

**12.6 Endocrine disrupting properties**

No information available

**12.7 Other adverse effects**

No information available

---

**SECTION 13: Disposal considerations**

---

**13.1 Waste treatment methods**

Disposal should be in accordance with local, state or national legislation

Dispose of contents/container to an authorised waste collection point

This material and/or its container must be disposed of as hazardous waste

---

**SECTION 13: Disposal considerations (....)**

Do not reuse empty containers without commercial cleaning or reconditioning

Empty containers may contain flammable vapours

Do not pierce or burn container, even after use

Avoid release to the environment.

**13.2 Classification**

The waste must be identified according to the List of Wastes (2000/532/EC)

Hazardous Property Code(s): HP 3 Flammable; HP 5 Specific Target Organ Toxicity (STOT)/Aspiration Toxicity

EWC Code: 20 01 27\* - paint, inks, adhesives and resins containing dangerous substances

---

**SECTION 14: Transport information****14.1 UN number or ID number**

UN No.: 1866

**14.2 UN proper shipping name**

Proper Shipping Name: RESIN SOLUTION

**14.3 Transport hazard class(es)**

Hazard Class: 3

**14.4 Packing group**

Packing Group: III

**14.5 Environmental hazards**

Not classified

**14.6 Special precautions for user**

No information available

**14.7 Maritime transport in bulk according to IMO instruments**

Not applicable

**14.8 Road/Rail (ADR/RID)**

ADR UN No.: 1866

Proper Shipping Name: RESIN SOLUTION

ADR Hazard Class: 3

ADR Packing Group: III

Tunnel Code: (D/E)

**14.9 Sea (IMDG)**

IMDG UN No.: 1866

Proper Shipping Name: RESIN SOLUTION

IMDG Hazard Class: 3

IMDG Packing Group.: III

---

**SECTION 14: Transport information (....)****14.10 Air (ICAO/IATA)**

ICAO UN No.: 1866  
Proper Shipping Name: RESIN SOLUTION  
ICAO Hazard Class: 3  
ICAO Packing Group: III

---

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

This safety data sheet is provided in compliance with REACH Regulation (EC) No 1907/2006 (as amended by Regulation (EU) 2020/878) and UK REACH

The GB Classification, Labelling and Packaging Regulation (GB CLP) applies in Great Britain

Regulation (EC) No. 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) applies in Europe

This product is covered by EU Directive 2012/18/EU (the Seveso III Directive)

Restrictions on use according to Annex XVII to REACH Regulation: N/A

**15.2 Chemical safety assessment**

No information available

---

**SECTION 16: Other information**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Sources of data: Information from testing, published literature and supplier safety data sheets

Revision No. 2.0.0. Revised December 2023.

Changes made: Product rename due to rebranding. Sections 11 and 12 revised. Revised to conform to latest Annex II of REACH.

**Training advice**

Workers must be informed of the presence of hazardous ingredients and trained in the proper use and handling of this product as required under applicable regulations

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Flam. Liq. 3, H226: Classification based on bridging principles of similar tested mixtures  
STOT SE 3, H336: Classification based on calculation and concentration thresholds

Text not given with phrase codes where they are used elsewhere in this safety data sheet:

H226: Flammable liquid and vapour

H336: May cause drowsiness or dizziness

EUH066: Repeated exposure may cause skin dryness or cracking

**Acronyms**

ATE: Acute Toxicity Estimate

---

---

**SECTION 16: Other information (....)**

CAS: Chemical Abstracts Service  
DNEL: Derived No-Effect Level  
EC: European Community  
EC<sub>50</sub>: Effective Concentration, 50%  
EL<sub>50</sub>: Effective Loading Rate resulting in 50% effect.  
GHS: Globally Harmonised System  
IOELV: Indicative Occupational Exposure Limit Value  
LC<sub>50</sub>: Lethal Concentration, 50%  
LD<sub>50</sub>: Lethal Dose, 50%  
LOAEC: Lowest Observed Adverse Effect Concentration  
LOAEL: Lowest Observed Adverse Effect Level  
NOAEC: No Observed Adverse Effect Concentration  
NOAEL: No Observed Adverse Effect Level  
OEL: Occupational Exposure Limit  
PBT: Persistent, Bioaccumulative and Toxic  
PNEC: Predicted No-Effect Concentration  
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals  
SCL: Specific Concentration Limit  
STOT RE: Specific Target Organ Toxicity Repeated Exposure  
STOT SE: Specific Target Organ Toxicity Single Exposure  
SVHC: Substances of Very High Concern  
vPvB: very Persistent and very Bioaccumulative  
WEL: Workplace Exposure Limit