SAFETY DATA SHEET (R.D. 255/2003)
FLINT PU D4

1. IDENTIFICATION OF THE PREPARATION AND THE COMPANY.

Preparation name: **COLA FLINT PU D4.**
Use of the preparation: **Adhesive for plastic laminates.**
Company**:** COLLAK, S.A.
Address: C/França Nº 3 Zona Ind. Pla de Llerona.
City: 08520 Les Franqueses del Vallès.
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2. COMPOSITION OF/INFORMATION ABOUT THE COMPONENTS.

Substances that are a health risk according to R.D. 255/2003, Rules and Regulations on Dangerous Substances:

nº CAS	***nº CE***	***Name***	***Concentration***	***Symbols***	***R phrases****
026447-40-5	247-714-0	1,1'-Methylenebis (isocyanatobenzene) (MDI)	15-24.5 %	Xn Xi	R20-42/43,36/37/38

* The complete text of the R phrases is given in section 16 of this Safety Data Sheet.

3. HAZARDS IDENTIFICATION.

May cause sensitization by inhalation and skin contact. Irritating to eyes, respiratory system and skin. In hypersensitive people, very low concentrations may lead to bronchoconstriction (asthmatic signs and symptoms).

4. FIRST AID.

In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

Inhalation.
Take the victim into open air; keep them warm and calm. If breathing is irregular or stops, perform artificial respiration or administer oxygen by qualified personnel. Do not administer anything orally. If unconscious, place them in a suitable position and seek medical assistance.

Eye contact.
Immediately flush eyes with plenty of clean and cool water for at least 10 minutes while pulling eyelids up if present. Obtain medical attention without delay, preferably from an ophthalmologist.

Skin contact.
Remove material from skin immediately by washing with soap and plenty of water. **NEVER** use solvents or thinners. Remove contaminated clothing and shoes while washing. Wash clothing before reuse.

Ingestion.
If accidentally ingested, seek immediate medical attention by a physician and/or transport to emergency facility immediately. Keep calm. **NEVER** induce vomiting.

Note to Physician
The components of this product are respiratory irritants and potential respiratory sensitizers. Treatment is essentially symptomatic for primary irritation or bronchospasms. Exposed persons should be kept under medical observation for at least 48 hours because delayed effects may occur.
Excessive exposure may aggravate pre-existing asthma and other respiratory disorders (eg. Emphysema, bronchitis, reactive airways dysfunction syndrome).

5. FIRE FIGHTING MEASURES.

Recommended extinguishing methods.
Extinguisher powder or CO_2. In case of more serious fires, also alcohol-resistant foam and water spray. Do not use a direct stream of water to extinguish or water in small quantities.

Hazardous Combustion Products.
Combustion products may include and are not limited to: Nitrogen oxides. Carbon oxides. Hydrogen cyanide and other hazardous gaseous products. Fire can cause thick, black smoke. Exposure to combustion or decomposition products can be harmful to your health.

Fire protection equipment.
Wear positive-pressure self contained breathing apparatus and protective fire fighting clothing (includes fire fighting helmet, goggles, facemask, coat, trousers, boots and gloves)

Specific Fire or Explosion Hazards
During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Contamination of isocyanates with water could lead to dangerous pressure inside closed containers by generation of carbon dioxide. Containers may burst if overheated. Do not discharge extinguishing waters intro streams, rivers and lakes. Take wind direction into account and evacuate down-wind personnel. Use water to cool tanks, cisterns, or containers close to the heat source or fire.

6. MEASURES TO TAKE IN CASE OF ACCIDENTAL SPILL.

Individual precautions.
Evacuate non-emergency personnel from area. Only trained and properly protected personnel should be involved in cleanup operations. Respiratory protection should include positive pressure, self-contained breathing apparatus. Wear adequate personal protective equipment. For exposure control and individual protection measures, see section 8.

Cleaning methods.
Supplies of suitable decontaminant should always be kept available. Contain and cover the spillage with decontaminant, wet earth or wet sand and leave to react for at least 30 minutes. Sovel residues into open-top drums and remove for further decontamination if necessary. Wash area well with water and inspect. Test atmosphere for vapour to ensure safe working conditions before other personnel are allowed in the area. Suitable decontaminant solutions:

Formulation1: Sodium Carbonate 5-10 %, Liquid detergent 0.2-2%, water to make up to 100%

Formulation 2: Concentrated ammonia solution 3-8%, liquid detergent 0.2-2%, water to make up 100%.

If ammonia is used, use good ventilation to prevent vapour exposure.

Environmental protection precautions.
Prevent the contamination of drains, surface or subterranean waters, and the ground.

7. HANDLING AND STORAGE.

Avoid contact of this product with water at all times during handling and storage.
Handling.
Products based on diisocyanates like MDI and TDI should always be used in a well ventilated area with appropriate local extraction in such a way that the Occupational Exposure Limits (OEL) for these materials are not exceeded. It is recommended that the diisocyanate concentration in the air be checked at regular intervals. Keep equipment clean. Use disposable containers and tools where possible. Do not eat, drink or smoke in the working area.

Storage
Store according to local legislation. Store in a dry place between 15-25ºC. Products based on diisocyanates like MDI and TDI react with water liberating carbon dioxide, which can lead to excessive pressure in closed containers, and form solid insoluble polymers, which can block pipes, valves, etc. Contact with copper or copper alloys and galvanized surfaces must be avoided and valves, etc… made of these materials must not be used in equipment for storing and handling diisocyanates. It is recommended that stainless steel or mild steel with an appropriate lining be used, to a minimum packaging Group III standard. Do not store in open containers. Damaged or punctured drums should be emptied.

8. EXPOSURE CONTROL/PERSONAL PROTECTION.

Measures of a technical nature.
Provide adequate ventilation, which can be achieved by using good local exhaust-ventilation and a good general exhaust system. If this were not enough to keep the particulate and fume concentrations of the solvent below the work exposure limit, suitable breathing equipment must be used. Engineering controls should be installed and regularly monitored to ensure exposure to vapour/aerosol is minimized.

Exposure Guidelines
OEL's (Occupational Exposure Limits) have been set for MDI in most countries, the common values being 20 ppb for short time exposure value and 5 ppb for long exposure value. National guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapours of this product.

Respiratory protection.
When workers are subjected to concentrations above the exposure limit, they must use suitable and officially approved equipment. Use active carbon masks.

Eye/face protection.
Use protective goggles especially designed to protect against liquid splatters. Install emergency eyewashes near the use area.

Skin protection.
Personnel must wear overalls, boots, apron and gloves.
Permeation test data indicate that the following are effective protective clothing materials:
Butyl rubber. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR")
Thin disposable gloves should be avoided for long term use. After work and before eating, drinking or smoking wash and clean yourself carefully with soap and water. Contaminated clothing should be washed and/or dry cleaned before re-use. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly

9. PHYSICAL AND CHEMICAL PROPERTIES.

The reported values are typical of MDI based products and may vary slightly from batch to batch.

Aspect: brown liquid.
pH (a 10 g/l H_2O y 20ºC): ND.
Vapour pressure: $<10^{-5}$ mmHg
Boiling Point: >200 ºC.
Melting point: <5 ºC.
Flash point: >200 ºC
Water Solubility: Insoluble, reacts, evolution of CO_2
Viscosity 5000 mPa's
Saturated vapour conc. 0.15 mg/m^3
Relative density: 1.14 g/ml at 20 °C
Relative vapour density (Air=1): 8.5 g/ml at 20 °C

10. STABILITY AND REACTIVITY.

Stable under the recommended handling and storage conditions (see section 7).
In case of fire, dangerous decomposition products can be generated, such as carbon monoxide and dioxide and nitrogen fumes.
Conditions to avoid: Heat, fire and ignition sources.
Materials to Avoid: Acids. Alcohols. Amines. Bases. Strong oxidising agents, Water, Galvanized metals, Copper and its alloys.
Products based on diisocyanates like MDI and TDI, react with many materials such as bases (eg. Caustic soda), ammonia, primary and secondary amines, alcohols, water and acids, generating heat. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of reaction partners is good or is supported by stirring or by the presence of solvents.
Products based on diisocyanates such as MDI and TDI, are insoluble in, and denser than, water and sink to the bottom but react slowly at the interface. A solid water-insoluble layer of polyurea is formed by liberating carbon dioxide gas.

11. TOXICOLOGICAL INFORMATION.

Based on actual testing or on data for similar material(s).

Short-term exposure

Ingestion
Low toxicity if swallowed. The oral LD50 for rats is > 2000 mg/Kg. Ingestion may cause gastrointestinal irritation.

Eye Contact
May cause moderate eye irritation. May cause very slight transient (temporary) corneal injury.

Skin Contact
According to human experience, the material may cause moderate to sever irritation. May stain skin. The LD50 for skin absorption in rabbits is >2000 mg/ Kg.

Inhalation
Polymeric MDI: The 4 hour LC50 for rats is 490 mg./m^3 (aerosol). The experimentally produced respirable aerosol had an aerodynamic diameter of less than 5 microns.
Vapour and aerosol can cause severe irritation of the respiratory tract with burning sensation to the nose and throat. High exposure can result in inflammation of lung tissue and fluid in the lungs. In hyper-bronchoconstriction (asthmatic signs and symptoms). Effects may be delayed.

Repeated and long-term exposure

Respiratory sensitisation
May cause sensitization by inhalation. Chronic exposure by inhalation may result in a permanent decease of lung function.
Skin Contact
May cause sensitization by skin contact. Animal studies have shown that skin contact with diisocyanates may play a role in respiratory sensitisation.
Carcinogenicity
Rats have been exposed for two years to an experimentally produced respirable aerosol of polymeric MDI which resulted in chronic pulmonary irritation at high concentrations. The prolonged irritation led to the formation of tumours in the lungs of a small proportion of the rats exposed to 6 mg/m^3. There were no tumours at 1 mg/m^3 and no effects at 0.2 mg/m^3. In the absence of prolonged high exposure leading to

chronic irritation and lung damage it is highly unlikely that tumours could occur, although these results reinforce the need to observe the recommended safety precautions and occupational exposure limit when working with MDI based products. Industrial experience in humans has not shown and links between MDI based products exposure and cancer development.

12. ECOLOGICAL INFORMATION.

Based on actual testing or on data for similar material(s).

Mobility and Bioaccumulation Potential
Movement in the environment is expected to be limited by the formation of insoluble polymers. Partitioning from water to n-octanol is not applicable. In the aqueous medium formation of insoluble and chemically and biologically inert polyureas will occur. No appreciable volatilization form water to air is expected. By analogy with TDI, it is expected that the predominant degradation mechanism in air is the OH radical attack.

Degradation
Biodegradation of polyureas under static laboratory conditions is estimated to be low. Conversion to soluble products, including diaminodiphenylmethane (MDA), is very low under the optimal laboratory test conditions of good dispersion and low concentration.

Aquatic Toxicity
Material is expected not to be classified as dangerous to aquatic organisms (LC50/EC50/IC50 greater than 100 mg7L in most sensitive species).

13. ELIMINATION CONSIDERATIONS.

Dumping into sewers or waterways is prohibited. Waste and empty containers must be handled and eliminated according to current, local/national legislation.

The generation of waste should be avoided or minimized wherever possible. Incineration under approved, controlled conditions using incinerators suitable or designed for the example with polyol, to neutralise prior to disposal. Empty drums should be decontaminated (see Section 6) and either punctured and scrapped or given to an approved drum reconditioner.

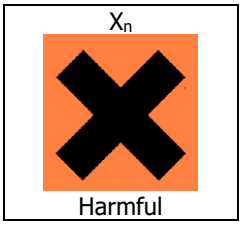
14. INFORMATION PERTAINING TO TRANSPORT.

Transport only classified for bulk transport by barge.

15. REGULATORY INFORMATION.

In accordance RD 255/2003, Rules and Regulations for Dangerous Preparations, the preparation is labelled as follows:

Hazard Symbol: X_n- Harmful



Risk phrases:
R36/37/38 Irritating to eyes, respiratory system and skin.
R42/43 May cause sensitization by inhalation and skin contact.

Safety phrases:
S2 Keep away from children.
S23 Do not breathe vapour/gas/fumes/spray.
S24/25 Avoid contact with eyes and skin.
S36/37 Wear suitable protective clothing and gloves.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Contains 1-1'-Methylenebis(isocyanatobenzene) (MDI)

16. OTHER INFORMATION.

Protective gloves should be worn when handling freshly-made polyurethane products to avoid skin contact with trace amounts of residual materials, some of which may be hazardous in contact with skin.

Complete text of the R phrases that appear in section 2:

R20 - Harmful by inhalation.
R36/37/38 - Irritating to eyes, respiratory system and skin.
R42/43 – May cause sensitisation by inhalation and skin contact.

The information given in this Safety Data Sheet has been drafted in accordance with RD 255/2003 (Directive 1999/45/EC, Directive 2001/60/EC and partly Directive 2001/58/EC, related to the safety data sheets of hazardous goods) of 28 February, published in Official Gazette of 4 March 2003, whereby the Regulation on Classification, Packaging and Labelling of Hazardous Goods is approved, as well as the RD 363/1995 of 10 March, published in Official Gazette of 5 June 1995, whereby the Regulation on Notification of New Substances and Classification, Packaging and Labelling of Hazardous Substances is approved, whose technical appendices have been updated by Orders of 13 September 1995 and 21 February 1997, published in Official Gazettes 224 and 59 respectively, RD 700/98 of 24 April 1998, published in Official Gazette of 8 May 1998, Order of 30 June 1998, published in Official Gazette of 6 July 1998, Order of 11 September 1998, published in Official Gazette of 17 September 1998, Order of 8 January 1999, published in Official Gazette of 14 January 1999, Order of 16 July 1999, published in Official Gazette of 27 July 1999, Order of 5 October 2000, published in Official Gazette of 10 October 2000, Order of 5 April 2001, published in Official Gazette of 19 April 2001, RD 507/2001, published in Official Gazette of 12 May 2001, Order PRE/2317/2002 of 16 September, published in Official Gazette of 24 September 2002 and RD 99/2003 of 24 January, published in Official Gazette of 4 February 2003, Directive 2004/73/EC of 29 April 2004.