Material Safety Data Sheet

Humidity Indicator Card, CDF-series

MSDS No.: AA01290-0000000002

SECTION 1: Chemical Product and Company Identification

Product Name:	Humidity Indicator Card, Reversible, CDF-series
Recommended Use of the Chemical:	Humidity Indicating in the Dry Packing
Manufacturer Name:	
Manufacturer Address:	
Emergency Phone Number:	

SECTION 2: Hazards Identification

Classification of the Substance or Mixture (Regulation (EC) No 1272/2008)

Self-heating, Category 1, H251

Acute toxicity, Category 4, Oral, H302

Series Eye Irritation, Category 2, H319

Respiratory Irritation (1 doze), Category 3, H335

Label Elements

Hazard Pictograms



Signal Word: Danger

Hazard Statements

H251, Self-heating; may catch fire.

H302, Harmful if swallowed.

H319, Causes serious eye irritation.

H335, May cause respiratory irritation.

Precautionary Statements

P235+P410, Keep cool. Protect from sunlight.

P261, Avoid breathing dust/fume/gas/mist/vapours/spray.

P264, Wash thoroughly after handling.

P270, Do not eat, drink or smoke when using this product.

P271, Use only outdoors or in a well-ventilated area.

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

P301+P312, IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell.

P304+P340, IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.

P305+P351+P338, IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312, Call a POISON CENTER or doctor/physician if you feel unwell.

P330, Rinse mouth.

P337+P313, IF eye irritation persists: Get medical advice/attention.

P403+P233, Store in a well-ventilated place. Keep container tightly closed.

P405, Store locked up

P407, Maintain air gap between stacks/pallets.

P413, Store bulk masses greater than ... kg/...lbs at temperatures not exceeding ... oC/...oF.

P420, Store away from other materials

P501, Dispose of contents/container to

SECTION 3: Composition, Information or Ingredients

Composition:

Chemical Name	CAS No.	Concentration (%)
Carbon black	1333-86-4	0.1
Pulp, cellulose	65996-61-4	99.7
Cobalt(II) bromide	7789-43-7	0.1
Calcium bromide	7789-41-5	0.1

SECTION 4: First Aid Measures

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

After inhalation: fresh air. Call in physician.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

SECTION 5: Fire-Fighting Measures

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

For extinguishing involving foreign substances, use alcohol foam, carbon dioxide or water spray.

When suffocating, use dry sand or soil.

Special hazards arising from the substance or mixture

During burning, irritating and very toxic gases may be generated by pyrolysis or combustion.

It can be re-ignited even after extinguishing.

Some can burn, but may not ignite easily.

When heated, it may decompose and generate corrosive or toxic fumes.

Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus.

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Avoid generation and inhalation of dusts in all circumstances.

Avoid substance contact.

Ensure adequate ventilation.

Evacuate the danger area, observe emergency procedures, consult an expert.

Environmental precautions

Do not let product enter drains. Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

SECTION 7: Handling and Storage

Precautions for safe handling: No special precautions required

Conditions for safe storage: Keep in a dry place

SECTION 8: Exposure Controls, Personal Protection

Control parameters (Exposure regulation)

Korean

Carbon black: TWA 3.5 mg/m3

Pulp, cellulose: TWA 10 mg/m3

Cobalt bromide: No information available.

Calcium bromide: No information available.

ACGIH

Carbon black: TWA 3 mg/m3

Pulp, cellulose: TWA 10 mg/m3

Cobalt bromide: No information available.

Calcium bromide: No information available.

Biological exposure limits

No information available.

Exposure controls

Personal Protective Equipment Routine Handling: Prophylactic use of protective ointment (barrier cream) is recommended.

Skin Protection: Protective gloves

Eye Protection: Not applicable

Respiratory: Not applicable

SECTION 9: Physical and Chemical Properties

Physical Status and Appearance: Plate cellulosic paper

Color: Blue to pink, white paper and black print

Odor: Odorless

pH: 5.0 - 9.0

Melting point: No information available.

Boiling point: No information available.

Flash point: No information available.

Evaporation rate: No information available.

Vapour pressure: No information available.

Relative density: No information available.

Water solubility: Partly soluble, Cobalt chloride and Calcium chloride can be leached out.

Partition coefficient: n-octanol/water:

Auto-ignition temperature: No information available.

Viscosity, dynamic: No information available.

Explosive properties: No information available.

Oxidizing properties: None.

SECTION 10: Stability and Reactivity

Chemical Stability: Stable

Conditions to Avoid: Hygroscopic

Materials to Avoid: Strong-oxidizing agents, Alkali metals

Reformed Hazards when Decomposed: No decomposition if stored and applied as directed.

Possibility of Toxic Decomposition: None

SECTION 11: Toxicological Information

Acute oral toxicity

Cobalt bromide: LD50 406 mg/kg Rat

Calcium bromide: LD50 4100 mg/kg Rat

Skin corrosion or irritation

Calcium bromide: Weak irritation

Eye irritation

Cobalt bromide: Eye irritation

Calcium bromide: Eye irritation

Skin sensitization

Cobalt bromide: Hypersensitivity

Carcinogenicity

Carbon black

Notification of Korean Ministry of Employment and Labor: Category 2

IARC: Category 2B

OSHA/NTP: Applicable

ACGIH: Category A3

Cobalt bromide

IARC: Category 2B (as Cobalt and cobalt compounds)

OSHA/NTP: Applicable

ACGIH: Category A3 (as Cobalt and inorganic compounds, as Co)

Specific Target organ toxicity (1 exposure)

Pulp, cellulose: Inhalation irritates airways.

Cobalt bromide: Causes respiratory irritation and pulmonary edema.

Specific Target organ toxicity (Repeated exposure)

Cobalt bromide: No information available.

Calcium bromide: Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the central nervous system when ingested.

Aspiration hazard

No information available.

SECTION 12: Ecological Information

Ecological toxicity

Pisces

Carbon black: LC50 > 1000 mg/L 96hr (Tribolodon hakonensis)

Pulp, cellulose: No information available.

Cobalt bromide: LC50 91.9 mg/L 96hr (Phimephales promelas)

Calcium bromide: LC50 5578.446 mg/L 96hr (ECOSAR Class: Neutral Organics)

Shellfish

Carbon black: EC50 5600 mg/L 24hr (Daphnia magna)

Pulp, cellulose: No information available.

Cobalt bromide: No information available.

Calcium bromide: LC50 2420.898 mg/L 48hr (ECOSAR Class: Neutral Organics)

Birds

Carbon black: EC50 > 10000 mg/L 72hr (Desmodesmus subsiicatus)

Pulp, cellulose: No information available.

Cobalt bromide: No information available.

Calcium bromide: EC50 532.418 mg/L 96hr (ECOSAR Class: Neutral Organics)

Persistence and degradability

Persistence: No information available.

Degradability: No information available.

Bioaccumulative potential

Calcium bromide: BCF 3.162 / Cut-off value = 0.0375 (BIOWIN 6)

Mobility in soil

No information available.

Other adverse effects

No information available.

SECTION 13: Disposal Considerations

Waste treatment methods

Waste material must be disposed of in accordance with the national and local regulations.

Leave chemicals in original containers. No mixing with other waste.

SECTION 14: Transport Information

UN number

Carbon black: UN 1361

Pulp, cellulose: No information available.

Cobalt bromide: UN 1756

Calcium bromide: No information available.

Proper shipping name

Carbon black: No information available.

Pulp, cellulose: No information available.

Cobalt bromide: No information available.

Calcium bromide: No information available.

Class

Carbon black: 4

Pulp, cellulose: No information available.

Cobalt bromide: 8

Calcium bromide: No information available.

Environmental hazardous

Carbon black: No

Calcium chloride: No information available.

Cobalt bromide: No information available.

Calcium bromide: No information available.

SECTION 15: Regulatory Information

Korean occupational safety and health act

Carbon black: Listed

Pulp, cellulose: Listed

Korean waste management act

Cobalt bromide: Designated waste

EU regulation

No information available.

SECTION 16: Other Information

References

Carbon black: NITE, ECHA, ECB-ESIS, ECOTOX database, IUCLID, TOXNET, ICSC

Pulp, cellulose: ACGIH, IUCLID, Corporate Solution from Thomson Micromedex

Cobalt bromide: NLM/HSDB, Corporate Solution from Thomson Micromedex

Calcium bromide: Merck Index, LookChem, ECB-ESIS, EPI Suite, ECHA, ECOSAR

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