Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/01/2009 Reviewed on 05/30/2003

1 Identification of substance:

Product details:

Product name: Chlorotris(triphenylphosphine)cobalt (I)

Stock number: 18581

Manufacturer/Supplier:
Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department
Emergency information:
During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

Chemical characterization:
Description: (CAS#)
Chlorotris(triphenylphosphine)cobalt (I)
(CAS# 26305-75-9): 100%

3 Hazards identification

Hazard description:

Xn Harmful

Information pertaining to particular dangers for man and environment
R 43 May cause sensitization by skin contact.
R 68 Possible risk of irreversible effects.
Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

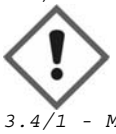
HEALTH	2
FIRE	1
REACTIVITY	1

Health (acute effects) = 2
Flammability = 1
Reactivity = 1

GHS label elements

Warning

3.5/2 - Suspected of causing genetic defects.



Warning

3.4/1 - May cause an allergic skin reaction.
Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.
Use personal protective equipment as required.
Response:
IF ON SKIN: Wash with plenty of soap and water.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see label).
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
Storage:
Store locked up.

(Contd. on page 2)

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/01/2009 Reviewed on 05/30/2003

Product name: Chlorotris(triphenylphosphine)cobalt (I)

(Contd. of page 1)

Disposal:
Dispose of contents/container in accordance with local/regional/national/international regulations.

4 First aid measures

After inhalation
Supply fresh air and to be sure call for a doctor.
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
After skin contact
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
After eye contact
Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing Seek immediate medical advice.

5 Fire fighting measures

Suitable extinguishing agents
Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Special hazards caused by the material, its products of combustion or resulting gases:
In case of fire, the following can be released:
Carbon monoxide and carbon dioxide
Hydrogen chloride (HCl)
Phosphorus oxides
Metal oxide fume
Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

Person-related safety precautions:
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Measures for environmental protection:
Do not allow material to be released to the environment without proper governmental permits.
Measures for cleaning/collecting:
Dispose contaminated material as waste according to item 13.
Additional information:
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

Handling
Information for safe handling:
Handle under dry protective gas.
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
Information about protection against explosions and fires: Keep ignition sources away.

Storage
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility:
Store away from oxidizing agents.
Store away from water/moisture.
Further information about storage conditions:
Store under dry inert gas.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

(Contd. on page 3)

Material Safety Data Sheet
acc. to OSHA and ANSI

Printing date 05/01/2009 Reviewed on 05/30/2003

Product name: Chlorotris(triphenylphosphine)cobalt (I)

(Contd. of page 2)

Components with limit values that require monitoring at the workplace:

Cobalt, elemental & inorganic compounds, as Co

	mg/m3
ACGIH TLV	0.02; Confirmed animal carcinogen
Austria	Carcinogen
Belgium TWA	0.05
Denmark TWA	0.05
Finland TWA	0.05 (skin)
Germany	Carcinogen
Hungary TWA	0.1; 0.2-STEL
Japan OEL	0.05; 2B-Carcinogen
Korea TLV	0.02; Confirmed animal carcinogen
Netherlands MAC-TGG	0.05
Norway TWA	0.05
Poland TWA	0.05; 0.2-STEL
Russia	0.5-STEL
Sweden NGV	0.05
Switzerland MAK-W	0.1; Carcinogen
United Kingdom TWA	0.1
USA PEL	0.1 (dust and fume)

Additional information: No data

Personal protective equipment
General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Breathing equipment: Use suitable respirator when high concentrations are present.
Protection of hands: Impervious gloves
Eye protection: Safety glasses
Body protection: Protective work clothing.

9 Physical and chemical properties:

General Information	
Form:	Crystalline
Odor:	Not determined
Change in condition	
Melting point/Melting range:	177°C (351°F) (dec)
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined
Flash point:	Not applicable
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not determined
Density:	Not determined

10 Stability and reactivity

Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Materials to be avoided:
Oxidizing agents
Water/moisture
Dangerous reactions No dangerous reactions known
Dangerous products of decomposition:
Carbon monoxide and carbon dioxide
Hydrogen chloride (HCl)
Phosphorus oxides (e.g. P2O5)

(Contd. on page 4)

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/01/2009 *Reviewed on 05/30/2003*

Product name: Chlorotris(triphenylphosphine)cobalt (I)

(Contd. of page 3)

Metal oxide fume

11 Toxicological information

Acute toxicity:
Primary irritant effect:
on the skin: Irritant to skin and mucous membranes.
on the eye: Irritating effect.
Sensitization: Sensitization possible through skin contact.
Subacute to chronic toxicity:
Cobalt is an experimental neoplastigen and tumorigen. It is an experimental carcinogen of the connective tissue and lungs. Cobalt metal and inorganic compounds are classified as an animal carcinogen by the ACGIH. Ingestion may cause burning in the mouth, esophagus, and stomach. Inhalation of dusts and fumes may cause irritation of the respiratory tract and labored breathing and coughing. Sensitization, nausea, flushing of the face and ringing in the ears is also possible. Chronic ingestion may result in pericardial effusion, polycardial effusion, polycythemia, cardiac failure, vomiting, convulsions and thyroid enlargement.
Subacute to chronic toxicity:
Organic phosphorus compounds exhibit a wide range of toxicity. Most are skin and eye irritants with the more volatile also being respiratory irritants. Those exhibiting substantial water reactivity will have stronger irritating properties and may be corrosive enough to cause severe burns. Some organic phosphorus compounds are cholinesterase inhibitors. Symptoms associated with these include muscle twitching, convulsions, flaccid paralysis, coma, respiratory failure. They can be highly paralytic.
Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information:

General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations

Product:
Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information

Not a hazardous material for transportation.

DOT regulations:
Hazard class: None

Land transport ADR/RID (cross-border)
ADR/RID class: None

Maritime transport IMDG:
IMDG Class: None

Air transport ICAO-TI and IATA-DGR:
ICAO/IATA Class: None

Transport/Additional information: Not dangerous according to the above specifications.

15 Regulations

Product related hazard informations:

Hazard symbols:
Xn Harmful

Risk phrases:
43 May cause sensitization by skin contact.
68 Possible risk of irreversible effects.

(Contd. on page 5)

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/01/2009 Reviewed on 05/30/2003

Product name: Chlorotris(triphenylphosphine)cobalt (I)

(Contd. of page 4)

Safety phrases:
36/37 Wear suitable protective clothing and gloves.

National regulations
This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only.
Some or all of the components of this product are not listed on the Canadian Domestic Substances List (DSL) or the Canadian Non-Domestic Substances List (NDSL).

Information about limitation of use:
For use only by technically qualified individuals.
This product contains cobalt and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.
Contact: Zachariah Holt
Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)