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

Catalogue Number	CS-AZ-00179
Product Name	Fluopicolide
CAS No.	239110-15-7
Category	Pesticide Standards
Synonyms	-
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email **sales@clearsynth.com** for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

Not available

2.2 Label Elements

Signal Word: Warning

Hazard Statement(s)

Code	Statement
H400	Not available
H410	Not available

Precautionary Statement(s)

Code	Statement
P203	Not available
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P318	Not available
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulatio
P273	Not available
P391	Not available

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : Fluopicolide
CAS Number : 239110-15-7
Molecular Formula : C■■H■Cl■F■N■O
Molecular Weight : 383.58
Parent Chemical : -
Synonyms : -
Concentration : Not available

SECTION 4: First aid measures

SECTION 4: First-aid measures

4.1 Description of first aid measures
General advice: Remove contaminated clothing and shoes. Seek medical attention if symptoms persist or if you feel unwell.
Inhalation: Move person to fresh air. Keep at rest. Get medical attention if symptoms occur.
Skin contact: Wash with plenty of soap and water. Get medical attention if irritation develops or persists.
Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Get medical attention if irritation persists.
Ingestion: Rinse mouth. Do NOT induce vomiting unless directed by medical personnel. Get medical attention.

4.2 Most important symptoms/effects, acute and delayed
Not available.

4.3 Indication of immediate medical attention and special treatment needed
Treat symptomatically. No data available.

SECTION 5: Firefighting measures

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Use extinguishing media appropriate for surrounding fire (e.g., water spray, dry chemical, foam, carbon dioxide).

5.2 Special hazards arising from the substance or mixture
May decompose under fire conditions to release hazardous gases/vapors. Specific decomposition products: Not available.

5.3 Advice for firefighters
Wear self-contained breathing apparatus (SCBA) and full protective gear. Cool containers with water spray if exposed to fire. Prevent fire-fighting water from entering drains or waterways.

SECTION 6: Accidental release measures

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid breathing dust/vapors. Avoid contact with skin and eyes. Use appropriate personal protective equipment (see Section 8). Ensure adequate ventilation.

6.2 Environmental precautions
Avoid release to the environment. Prevent entry into drains, surface water, and soil.

6.3 Methods and material for containment and cleaning up
Contain spill. Collect spilled material using inert absorbent and place in a suitable, labeled container for disposal. Clean contaminated area with water and detergent where appropriate. Dispose of waste in accordance with local regulations.

6.4 Reference to other sections
See Section 8 for personal protective equipment and Section 13 for disposal considerations.

SECTION-7: Handling and storage

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing. Avoid breathing dust/vapors. Use with adequate ventilation. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities
Store in tightly closed container in a cool, dry, well-ventilated place. Protect from moisture. Keep away from incompatible materials. Incompatible materials: Not available.

7.3 Specific end use(s)
Pesticide standard / laboratory use. Specific uses: Not available.

SECTION 8: Exposure controls / personal protection

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Occupational exposure limits: Not available.

Biological limit values: Not available.

8.2 Exposure controls
Engineering controls: Use local exhaust ventilation or general ventilation to minimize exposure.
Personal protective equipment (PPE):
- Eye/face protection: Safety glasses with side shields or chemical splash goggles.
- Skin protection: Protective gloves (material not specified). Wear protective clothing as appropriate.
- Respiratory protection: If ventilation is inadequate or exposure is likely, use appropriate respiratory protection.
Specific respirator type: Not available.
- Hygiene measures: Wash hands after handling. Remove and wash contaminated clothing before reuse.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	Off white solid
IR spectrum	Confirms
pH	No data available
Solubility	In DMSO

Property	Value
a) Physical State	No data available
b) Color	No data available
c) Odor	No data available
d) pH	No data available
e) Vapour Pressure	No data available
f) Viscosity	No data available
g) Initial Boiling Point and boiling range	No data available
h) Melting Point / Freezing Point	No data available
i) Auto Ignition Temperature	No data available
j) Flash Point	No data available
k) Explosion Limit, Lower	No data available
l) Explosion Limit, Upper	No data available

Property	Value
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available.

10.4 Conditions to avoid
Heat, open flames, and other ignition sources. Other conditions: Not available.

10.5 Incompatible materials
Not available.

10.6 Hazardous decomposition products
Not available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
- Acute toxicity: IDENTIFICATION AND USE: Fluopicolide is a beige solid used as a fungicide. HUMAN STUDIES: In primary human lymphocyte culture treated with fluopicolide no treatment-related increase in chromosomal aberrations was evident with or without activation. ANIMAL STUDIES: Fluopicolide was slightly irritating to the rabbit eye. Fluopicolide was not irritating to rabbit skin. Fluopicolide was not a skin sensitizer in a guinea-pig Magnusson and Kligman test. Fluopicolide has moderate toxicity with no deaths noted in male or female rats at doses of > 2000 mg/kg when given orally, and > 4000 mg/kg dermally. Rats were exposed (nose only) for 4 hr to a dust aerosol of fluopicolide at a concentration of 5.16 mg/L. The rats were observed for 14 days after exposure, then killed and autopsied. There was no mortality during the exposure and observation period. Common observations noted both during and after exposure included wet fur, hunched posture, piloerection and increased respiratory rate. Weight gain was markedly decreased in male and female rats in a subchronic study at doses of 1668 mg/kg/day and 1673 mg/kg/day), respectively. Male and female rats also experienced reduced body weight gain in a subchronic neurotoxicity study at doses of 780.6 and 125.2 mg/kg/day, respectively. There was no effect on weight gain in dogs or mice in subchronic studies. Besides effects on body weight and body weight gain, no definitive cross-species target organ was identified in subchronic studies with fluopicolide. As in the subchronic studies, the main effect in the chronic studies was a decrease in body weight gain with no definitive cross-species target organ identified. No

evidence for carcinogenicity was seen in rats administered fluopicolide in food for 24 months. No evidence of neurotoxicity was seen in acute or subchronic oral rat neurotoxicity studies with fluopicolide. In developmental studies in rats and rabbits, at the same dose affecting the dam, 700 mg/kg in rats and 60 mg/kg in rabbits, fetal growth was affected in both species and observed as decreases in body weight and crown-rump length. Also, at 700 mg/kg, delays in fetal ossification and increased incidence of skeletal malformations were observed in rat fetuses, with neither of these effects seen in rabbit fetuses. No external or visceral abnormalities were observed in either species. Reproductive performance was not affected in a two-generation reproduction toxicity study in which fluopicolide was administered to male and female rats. In Salmonella typhimurium strains TA98, TA100, TA1535, TA1537 and Escherichia coli WP2 uvrA treated with fluopicolide there was no increase in the incidence of reverse mutations. ECOTOXICITY STUDIES: Fluopicolide is highly toxic to estuarine/marine fish and is highly toxic to moderately toxic to freshwater fish. Bobwhite quail and mallard duck chronic reproduction toxicity studies demonstrated significant reductions in multiple reproductive endpoints at the highest treatment level (1020 mg a.i./kg diet), including viable embryos (14%), live embryos (15%), number hatched (22%), the ratios of number hatched to eggs laid (20%) and to eggs set (18%), hatchling survival (21%), and the proportion of survivors to eggs set (18%). /GENOTOXICITY/ Primary human lymphocyte cultures, procured from the whole blood of male volunteers (stimulated with phytohemagglutinin for 48 hours), were treated with concentrations of AE C638206 (/fluopicolide; purity: 95.9%) ranging from 4.88 to 625 ug/mL for 3 hours, followed by a recovery period of 18 hours of incubation under conditions of both nonactivation and activation in Trial No. 1. In Trial No. 2, the cells were treated with concentrations of the test material ranging from 1.22 to 625 ug/mL for 21 hours (nonactivation) or with 4.88 to 625 ug/mL of the test material for 3 hours, followed by a recovery period of 18 hours prior to being harvested (activation). An Aroclor 1254-induced rat liver S9 fraction was used to metabolize the test material. No treatment-related increase in chromosomal aberrations was evident under conditions either conditions of nonactivation or activation. The positive controls were functional.

- Skin corrosion/irritation: /LABORATORY ANIMALS: Acute Exposure/ In a dermal irritancy study ... , three albino New Zealand White rabbits were exposed to 0.5 g of fluopicolide (purity 97.7% ...) under an occlusive dressing on the closely clipped dorsal skin for 4 hr. Dermal reactions were assessed at 1, 24, 48 and 72 hr after removal of the dressing. No dermal irritation was observed during the study. The mean irritation score over 24-72 hr was 0 for erythema and 0 for edema. Fluopicolide was not irritating to rabbit skin.
- Serious eye damage/eye irritation: In an eye irritation study ..., four New Zealand White rabbits were exposed to 0.1 mL of fluopicolide (purity 97.7%; ...) instilled into the conjunctival sac of one eye only on day 1. Ocular reactions were assessed at 1, 24, 48 and 72 hr and 7 days after treatment. In a preliminary screen conducted with one of the four rabbits, the eye was rinsed 30 seconds after instillation. The treated eye of each of the other three rabbits was not rinsed. The single instillation of fluopicolide into the eye of the screen rabbit, followed by rinsing, provoked slight conjunctival irritation observed 1 hr after instillation, but not at the next observation time, 24 hr. The single instillations of fluopicolide into one eye of each of the three main test rabbits, not followed by rinsing, elicited slight conjunctival irritation in all rabbits from 1 hr after instillation. The ocular reactions resolved in all instances within 2 days after instillation. Fluopicolide was transiently slightly irritating to the rabbit eye. /LABORATORY ANIMALS: Acute Exposure/ In an eye irritation study ..., four New Zealand White rabbits were exposed to 0.1 mL of fluopicolide (purity 97.7%; ...) instilled into the conjunctival sac of one eye only on day 1. Ocular reactions were assessed at 1, 24, 48 and 72 hr and 7 days after treatment. In a preliminary screen conducted with one of the four rabbits, the eye was rinsed 30 seconds after instillation. The treated eye of each of the other three rabbits was not rinsed. The single instillation of fluopicolide into the eye of the screen rabbit, followed by rinsing, provoked slight conjunctival irritation observed 1 hr after instillation, but not at the next observation time, 24 hr. The single instillations of fluopicolide into one eye of each of the three main test rabbits, not followed by rinsing, elicited slight conjunctival irritation in all rabbits from 1 hr after instillation. The ocular reactions resolved in all instances within 2 days after instillation. Fluopicolide was transiently slightly irritating to the rabbit eye.

- Respiratory or skin sensitization: IDENTIFICATION AND USE: Fluopicolide is a beige solid used as a fungicide. HUMAN STUDIES: In primary human lymphocyte culture treated with fluopicolide no treatment-related increase in chromosomal aberrations was evident with or without activation. ANIMAL STUDIES: Fluopicolide was slightly irritating to the rabbit eye. Fluopicolide was not irritating to rabbit skin. Fluopicolide was not a skin sensitizer in a guinea-pig Magnusson and Kligman test. Fluopicolide has moderate toxicity with no deaths noted in male or female rats at doses of > 2000 mg/kg when given orally, and > 4000 mg/kg dermally. Rats were exposed (nose only) for 4 hr to a dust aerosol of fluopicolide at a concentration of 5.16 mg/L. The rats were observed for 14 days after exposure, then killed and autopsied. There was no mortality during the exposure and observation period. Common observations noted both during and after exposure included wet fur, hunched posture, piloerection and increased respiratory rate. Weight gain was markedly decreased in male and female rats in a subchronic study at doses of 1668 mg/kg/day and 1673 mg/kg/day), respectively. Male and female rats also experienced reduced body weight gain in a subchronic neurotoxicity study at doses of 780.6 and 125.2 mg/kg/day, respectively. There was no effect on weight gain in dogs or mice in subchronic studies. Besides effects on body weight and body weight gain, no definitive cross-species target organ was identified in subchronic studies with fluopicolide. As in the subchronic studies, the main effect in the chronic studies was a decrease in body weight gain with no definitive cross-species target organ identified. No evidence for carcinogenicity was seen in rats administered fluopicolide in food for 24 months. No evidence of neurotoxicity was seen in acute or subchronic oral rat neurotoxicity studies with fluopicolide. In developmental studies in rats and rabbits, at the same dose affecting the dam, 700 mg/kg in rats and 60 mg/kg in rabbits, fetal growth was affected in both species and observed as decreases in body weight and crown-rump length. Also, at 700 mg/kg, delays in fetal ossification and increased incidence of skeletal malformations were observed in rat fetuses, with neither of these effects seen in rabbit fetuses. No external or visceral abnormalities were observed in either species. Reproductive performance was not affected in a two-generation reproduction toxicity study in which fluopicolide was administered to male and female rats. In Salmonella typhimurium strains TA98, TA100, TA1535, TA1537 and Escherichia coli WP2 uvrA treated with fluopicolide there was no increase in the incidence of reverse mutations. ECOTOXICITY STUDIES: Fluopicolide is highly toxic to estuarine/marine fish and is highly toxic to moderately toxic to freshwater fish. Bobwhite quail and mallard duck chronic reproduction toxicity studies demonstrated significant reductions in multiple reproductive endpoints at the highest treatment level (1020 mg a.i./kg diet), including viable embryos (14%), live embryos (15%), number hatched (22%), the ratios of number hatched to eggs laid (20%) and to eggs set (18%), hatchling survival (21%), and the proportion of survivors to eggs set (18%). /LABORATORY ANIMALS: Acute Exposure/ In a skin sensitization study ..., delayed-contact hypersensitivity in guinea-pigs exposed to flopicolide (purity 97.7% ...) was assessed by the Magnusson and Kligman maximization method. Based on the findings of a preliminary study, the closely clipped dorsa of 10 male and 10 female Dunkin Hartley guinea-pigs were given intradermal injections of Freund's complete adjuvant, 10% w/v fluopicolide in sterile water and 10% w/v fluopicolide in a 50:50 mixture of Freund's complete adjuvant in sterile water on day 1. Six days later, the same area of skin was treated by topical application of 100% w/v fluopicolide in sterile water, and the test site was covered by an occlusive dressing for 48 hr. The same induction procedures were carried out on 10 control group guinea-pigs, except that the test material was replaced by vehicle. Two weeks after the topical induction, all guinea-pigs were challenged by occluded application of 100% fluopicolide in sterile water to the anterior site on the flank and 50% fluopicolide in sterile water to the posterior site on the flank. The occlusive dressings were removed on the following day, and the condition of the test sites was assessed approximately 24 and 48 hr later. There were no deaths or signs of ill-health or toxicity. Body weight changes were similar between control and treated guinea-pigs. Necrosis was observed at sites receiving Freund's complete adjuvant in all test and control guinea-pigs following intradermal injections. Slight irritation was seen in 6 of 20 guinea-pigs receiving 10% w/v fluopicolide in sterile water, and no irritation was observed in controls. Following topical application, slight to well-defined erythema was observed in all test guinea-pigs receiving 100% w/v fluopicolide. The challenge application produced no dermal reactions indicative of skin sensitization in any of the test or control guinea-pigs.

Slight erythema was observed in two test guinea-pigs at the 24 and 48 hr readings compared with slight to well-defined erythema for two control guinea-pigs at the 48 hr reading only. The reactions observed were noted to be of similar incidence and severity. As no reactions were observed for any of the remaining test or control guinea-pigs, the overall response was considered negative. Fluopicolide was not a skin sensitizer in this guinea-pig Magnusson and Kligman test.
- Germ cell mutagenicity: IDENTIFICATION AND USE: Fluopicolide is a beige solid used as a fungicide. HUMAN STUDIES: In primary human lymphocyte culture treated with fluopicolide no treatment-related increase in chromosomal aberrations was evident with or without activation. ANIMAL STUDIES: Fluopicolide was slightly irritating to the rabbit eye. Fluopicolide was not irritating to rabbit skin. Fluopicolide was not a skin sensitizer in a guinea-pig Magnusson and Kligman test. Fluopicolide has moderate toxicity with no deaths noted in male or female rats at doses of > 2000 mg/kg when given orally, and > 4000 mg/kg dermally. Rats were exposed (nose only) for 4 hr to a dust aerosol of fluopicolide at a concentration of 5.16 mg/L. The rats were observed for 14 days after exposure, then killed and autopsied. There was no mortality during the exposure and observation period. Common observations noted both during and after exposure included wet fur, hunched posture, piloerection and increased respiratory rate. Weight gain was markedly decreased in male and female rats in a subchronic study at doses of 1668 mg/kg/day and 1673 mg/kg/day), respectively. Male and female rats also experienced reduced body weight gain in a subchronic neurotoxicity study at doses of 780.6 and 125.2 mg/kg/day, respectively. There was no effect on weight gain in dogs or mice in subchronic studies. Besides effects on body weight and body weight gain, no definitive cross-species target organ was identified in subchronic studies with fluopicolide. As in the subchronic studies, the main effect in the chronic studies was a decrease in body weight gain with no definitive cross-species target organ identified. No evidence for carcinogenicity was seen in rats administered fluopicolide in food for 24 months. No evidence of neurotoxicity was seen in acute or subchronic oral rat neurotoxicity studies with fluopicolide. In developmental studies in rats and rabbits, at the same dose affecting the dam, 700 mg/kg in rats and 60 mg/kg in rabbits, fetal growth was affected in both species and observed as decreases in body weight and crown-rump length. Also, at 700 mg/kg, delays in fetal ossification and increased incidence of skeletal malformations were observed in rat fetuses, with neither of these effects seen in rabbit fetuses. No external or visceral abnormalities were observed in either species. Reproductive performance was not affected in a two-generation reproduction toxicity study in which fluopicolide was administered to male and female rats. In Salmonella typhimurium strains TA98, TA100, TA1535, TA1537 and Escherichia coli WP2 uvrA treated with fluopicolide there was no increase in the incidence of reverse mutations. ECOTOXICITY STUDIES: Fluopicolide is highly toxic to estuarine/marine fish and is highly toxic to moderately toxic to freshwater fish. Bobwhite quail and mallard duck chronic reproduction toxicity studies demonstrated significant reductions in multiple reproductive endpoints at the highest treatment level (1020 mg a.i./kg diet), including viable embryos (14%), live embryos (15%), number hatched (22%), the ratios of number hatched to eggs laid (20%) and to eggs set (18%), hatchling survival (21%), and the proportion of survivors to eggs set (18%). /GENOTOXICITY/ Primary human lymphocyte cultures, procured from the whole blood of male volunteers (stimulated with phytohemagglutinin for 48 hours), were treated with concentrations of AE C638206 (/fluopicolide; purity: 95.9%) ranging from 4.88 to 625 ug/mL for 3 hours, followed by a recovery period of 18 hours of incubation under conditions of both nonactivation and activation in Trial No. 1. In Trial No. 2, the cells were treated with concentrations of the test material ranging from 1.22 to 625 ug/mL for 21 hours (nonactivation) or with 4.88 to 625 ug/mL of the test material for 3 hours, followed by a recovery period of 18 hours prior to being harvested (activation). An Aroclor 1254-induced rat liver S9 fraction was used to metabolize the test material. No treatment-related increase in chromosomal aberrations was evident under conditions either conditions of nonactivation or activation. The positive controls were functional.
- Carcinogenicity: IDENTIFICATION AND USE: Fluopicolide is a beige solid used as a fungicide. HUMAN STUDIES: In primary human lymphocyte culture treated with fluopicolide no treatment-related increase in chromosomal aberrations was evident with or without activation. ANIMAL STUDIES: Fluopicolide was slightly irritating to the rabbit

eye. Fluopicolide was not irritating to rabbit skin. Fluopicolide was not a skin sensitizer in a guinea-pig Magnusson and Kligman test. Fluopicolide has moderate toxicity with no deaths noted in male or female rats at doses of > 2000 mg/kg when given orally, and > 4000 mg/kg dermally. Rats were exposed (nose only) for 4 hr to a dust aerosol of fluopicolide at a concentration of 5.16 mg/L. The rats were observed for 14 days after exposure, then killed and autopsied. There was no mortality during the exposure and observation period. Common observations noted both during and after exposure included wet fur, hunched posture, piloerection and increased respiratory rate. Weight gain was markedly decreased in male and female rats in a subchronic study at doses of 1668 mg/kg/day and 1673 mg/kg/day), respectively. Male and female rats also experienced reduced body weight gain in a subchronic neurotoxicity study at doses of 780.6 and 125.2 mg/kg/day, respectively. There was no effect on weight gain in dogs or mice in subchronic studies. Besides effects on body weight and body weight gain, no definitive cross-species target organ was identified in subchronic studies with fluopicolide. As in the subchronic studies, the main effect in the chronic studies was a decrease in body weight gain with no definitive cross-species target organ identified. No evidence for carcinogenicity was seen in rats administered fluopicolide in food for 24 months. No evidence of neurotoxicity was seen in acute or subchronic oral rat neurotoxicity studies with fluopicolide. In developmental studies in rats and rabbits, at the same dose affecting the dam, 700 mg/kg in rats and 60 mg/kg in rabbits, fetal growth was affected in both species and observed as decreases in body weight and crown-rump length. Also, at 700 mg/kg, delays in fetal ossification and increased incidence of skeletal malformations were observed in rat fetuses, with neither of these effects seen in rabbit fetuses. No external or visceral abnormalities were observed in either species. Reproductive performance was not affected in a two-generation reproduction toxicity study in which fluopicolide was administered to male and female rats. In Salmonella typhimurium strains TA98, TA100, TA1535, TA1537 and Escherichia coli WP2 uvrA treated with fluopicolide there was no increase in the incidence of reverse mutations. ECOTOXICITY STUDIES: Fluopicolide is highly toxic to estuarine/marine fish and is highly toxic to moderately toxic to freshwater fish. Bobwhite quail and mallard duck chronic reproduction toxicity studies demonstrated significant reductions in multiple reproductive endpoints at the highest treatment level (1020 mg a.i./kg diet), including viable embryos (14%), live embryos (15%), number hatched (22%), the ratios of number hatched to eggs laid (20%) and to eggs set (18%), hatchling survival (21%), and the proportion of survivors to eggs set (18%). - Reproductive toxicity: IDENTIFICATION AND USE: Fluopicolide is a beige solid used as a fungicide. HUMAN STUDIES: In primary human lymphocyte culture treated with fluopicolide no treatment-related increase in chromosomal aberrations was evident with or without activation. ANIMAL STUDIES: Fluopicolide was slightly irritating to the rabbit eye. Fluopicolide was not irritating to rabbit skin. Fluopicolide was not a skin sensitizer in a guinea-pig Magnusson and Kligman test. Fluopicolide has moderate toxicity with no deaths noted in male or female rats at doses of > 2000 mg/kg when given orally, and > 4000 mg/kg dermally. Rats were exposed (nose only) for 4 hr to a dust aerosol of fluopicolide at a concentration of 5.16 mg/L. The rats were observed for 14 days after exposure, then killed and autopsied. There was no mortality during the exposure and observation period. Common observations noted both during and after exposure included wet fur, hunched posture, piloerection and increased respiratory rate. Weight gain was markedly decreased in male and female rats in a subchronic study at doses of 1668 mg/kg/day and 1673 mg/kg/day), respectively. Male and female rats also experienced reduced body weight gain in a subchronic neurotoxicity study at doses of 780.6 and 125.2 mg/kg/day, respectively. There was no effect on weight gain in dogs or mice in subchronic studies. Besides effects on body weight and body weight gain, no definitive cross-species target organ was identified in subchronic studies with fluopicolide. As in the subchronic studies, the main effect in the chronic studies was a decrease in body weight gain with no definitive cross-species target organ identified. No evidence for carcinogenicity was seen in rats administered fluopicolide in food for 24 months. No evidence of neurotoxicity was seen in acute or subchronic oral rat neurotoxicity studies with fluopicolide. In developmental studies in rats and rabbits, at the same dose affecting the dam, 700 mg/kg in rats and 60 mg/kg in rabbits, fetal growth was affected in both species and observed as decreases in body weight and crown-rump length. Also, at 700 mg/kg, delays in fetal ossification and increased incidence of skeletal malformations were

observed in rat fetuses, with neither of these effects seen in rabbit fetuses. No external or visceral abnormalities were observed in either species. Reproductive performance was not affected in a two-generation reproduction toxicity study in which fluopicolide was administered to male and female rats. In Salmonella typhimurium strains TA98, TA100, TA1535, TA1537 and Escherichia coli WP2 uvrA treated with fluopicolide there was no increase in the incidence of reverse mutations. ECOTOXICITY STUDIES: Fluopicolide is highly toxic to estuarine/marine fish and is highly toxic to moderately toxic to freshwater fish. Bobwhite quail and mallard duck chronic reproduction toxicity studies demonstrated significant reductions in multiple reproductive endpoints at the highest treatment level (1020 mg a.i./kg diet), including viable embryos (14%), live embryos (15%), number hatched (22%), the ratios of number hatched to eggs laid (20%) and to eggs set (18%), hatchling survival (21%), and the proportion of survivors to eggs set (18%). /BIRDS and MAMMALS/ The bobwhite quail and mallard duck chronic reproduction toxicity studies resulted in NOAEC and LOAEC values of 162 and 404 mg a.i./kg diet, respectively. In the bobwhite quail study, there was a treatment-related effect on hatchling body weights (8%) and the proportion of hatchling survivors to number hatched (5%) at the 404 mg ai/kg diet level. These same effects were observed at 1020 mg/kg diet. No other treatment-related effects were observed on any adult or offspring. ... In the mallard duck study, the most sensitive endpoints were the proportion of eggs set to eggs laid and eggshell thickness. The proportion of eggs set to those laid was adversely affected (2-3%) at the 404 mg ai/kg diet level and eggshell thickness was adversely affected (5%) at the 404 mg ai/kg diet treatment level. While these effects were slight (<5%), they are correlated (i.e., thinner shells can reduce clutch size), so they cannot be dismissed. There were significant reductions in multiple reproductive endpoints at the highest treatment level (1020 mg a.i./kg diet), including viable embryos (14%), live embryos (15%), number hatched (22%), the ratios of number hatched to eggs laid (20%) and to eggs set (18%), hatchling survival (21%), and the proportion of survivors to eggs set (18%). No treatment-related effects on any adult parameter were observed.
- STOT-single exposure: IDENTIFICATION AND USE: Fluopicolide is a beige solid used as a fungicide. HUMAN STUDIES: In primary human lymphocyte culture treated with fluopicolide no treatment-related increase in chromosomal aberrations was evident with or without activation. ANIMAL STUDIES: Fluopicolide was slightly irritating to the rabbit eye. Fluopicolide was not irritating to rabbit skin. Fluopicolide was not a skin sensitizer in a guinea-pig Magnusson and Kligman test. Fluopicolide has moderate toxicity with no deaths noted in male or female rats at doses of > 2000 mg/kg when given orally, and > 4000 mg/kg dermally. Rats were exposed (nose only) for 4 hr to a dust aerosol of fluopicolide at a concentration of 5.16 mg/L. The rats were observed for 14 days after exposure, then killed and autopsied. There was no mortality during the exposure and observation period. Common observations noted both during and after exposure included wet fur, hunched posture, piloerection and increased respiratory rate. Weight gain was markedly decreased in male and female rats in a subchronic study at doses of 1668 mg/kg/day and 1673 mg/kg/day), respectively. Male and female rats also experienced reduced body weight gain in a subchronic neurotoxicity study at doses of 780.6 and 125.2 mg/kg/day, respectively. There was no effect on weight gain in dogs or mice in subchronic studies. Besides effects on body weight and body weight gain, no definitive cross-species target organ was identified in subchronic studies with fluopicolide. As in the subchronic studies, the main effect in the chronic studies was a decrease in body weight gain with no definitive cross-species target organ identified. No evidence for carcinogenicity was seen in rats administered fluopicolide in food for 24 months. No evidence of neurotoxicity was seen in acute or subchronic oral rat neurotoxicity studies with fluopicolide. In developmental studies in rats and rabbits, at the same dose affecting the dam, 700 mg/kg in rats and 60 mg/kg in rabbits, fetal growth was affected in both species and observed as decreases in body weight and crown-rump length. Also, at 700 mg/kg, delays in fetal ossification and increased incidence of skeletal malformations were observed in rat fetuses, with neither of these effects seen in rabbit fetuses. No external or visceral abnormalities were observed in either species. Reproductive performance was not affected in a two-generation reproduction toxicity study in which fluopicolide was administered to male and female rats. In Salmonella typhimurium strains TA98, TA100, TA1535, TA1537 and Escherichia coli WP2 uvrA treated with fluopicolide there was no increase in the

incidence of reverse mutations. ECOTOXICITY STUDIES: Fluopicolide is highly toxic to estuarine/marine fish and is highly toxic to moderately toxic to freshwater fish. Bobwhite quail and mallard duck chronic reproduction toxicity studies demonstrated significant reductions in multiple reproductive endpoints at the highest treatment level (1020 mg a.i./kg diet), including viable embryos (14%), live embryos (15%), number hatched (22%), the ratios of number hatched to eggs laid (20%) and to eggs set (18%), hatchling survival (21%), and the proportion of survivors to eggs set (18%).
- STOT-repeated exposure: IDENTIFICATION AND USE: Fluopicolide is a beige solid used as a fungicide. HUMAN STUDIES: In primary human lymphocyte culture treated with fluopicolide no treatment-related increase in chromosomal aberrations was evident with or without activation. ANIMAL STUDIES: Fluopicolide was slightly irritating to the rabbit eye. Fluopicolide was not irritating to rabbit skin. Fluopicolide was not a skin sensitizer in a guinea-pig Magnusson and Kligman test. Fluopicolide has moderate toxicity with no deaths noted in male or female rats at doses of > 2000 mg/kg when given orally, and > 4000 mg/kg dermally. Rats were exposed (nose only) for 4 hr to a dust aerosol of fluopicolide at a concentration of 5.16 mg/L. The rats were observed for 14 days after exposure, then killed and autopsied. There was no mortality during the exposure and observation period. Common observations noted both during and after exposure included wet fur, hunched posture, piloerection and increased respiratory rate. Weight gain was markedly decreased in male and female rats in a subchronic study at doses of 1668 mg/kg/day and 1673 mg/kg/day), respectively. Male and female rats also experienced reduced body weight gain in a subchronic neurotoxicity study at doses of 780.6 and 125.2 mg/kg/day, respectively. There was no effect on weight gain in dogs or mice in subchronic studies. Besides effects on body weight and body weight gain, no definitive cross-species target organ was identified in subchronic studies with fluopicolide. As in the subchronic studies, the main effect in the chronic studies was a decrease in body weight gain with no definitive cross-species target organ identified. No evidence for carcinogenicity was seen in rats administered fluopicolide in food for 24 months. No evidence of neurotoxicity was seen in acute or subchronic oral rat neurotoxicity studies with fluopicolide. In developmental studies in rats and rabbits, at the same dose affecting the dam, 700 mg/kg in rats and 60 mg/kg in rabbits, fetal growth was affected in both species and observed as decreases in body weight and crown-rump length. Also, at 700 mg/kg, delays in fetal ossification and increased incidence of skeletal malformations were observed in rat fetuses, with neither of these effects seen in rabbit fetuses. No external or visceral abnormalities were observed in either species. Reproductive performance was not affected in a two-generation reproduction toxicity study in which fluopicolide was administered to male and female rats. In Salmonella typhimurium strains TA98, TA100, TA1535, TA1537 and Escherichia coli WP2 uvrA treated with fluopicolide there was no increase in the incidence of reverse mutations. ECOTOXICITY STUDIES: Fluopicolide is highly toxic to estuarine/marine fish and is highly toxic to moderately toxic to freshwater fish. Bobwhite quail and mallard duck chronic reproduction toxicity studies demonstrated significant reductions in multiple reproductive endpoints at the highest treatment level (1020 mg a.i./kg diet), including viable embryos (14%), live embryos (15%), number hatched (22%), the ratios of number hatched to eggs laid (20%) and to eggs set (18%), hatchling survival (21%), and the proportion of survivors to eggs set (18%). /BIRDS and MAMMALS/ The bobwhite quail and mallard duck chronic reproduction toxicity studies resulted in NOAEC and LOAEC values of 162 and 404 mg a.i./kg diet, respectively. In the bobwhite quail study, there was a treatment-related effect on hatchling body weights (8%) and the proportion of hatchling survivors to number hatched (5%) at the 404 mg ai/kg diet level. These same effects were observed at 1020 mg/kg diet. No other treatment-related effects were observed on any adult or offspring. ... In the mallard duck study, the most sensitive endpoints were the proportion of eggs set to eggs laid and eggshell thickness. The proportion of eggs set to those laid was adversely affected (2-3%) at the 404 mg ai/kg diet level and eggshell thickness was adversely affected (5%) at the 404 mg ai/kg diet treatment level. While these effects were slight (<5%), they are correlated (i.e., thinner shells can reduce clutch size), so they cannot be dismissed. There were significant reductions in multiple reproductive endpoints at the highest treatment level (1020 mg a.i./kg diet), including viable embryos (14%), live embryos (15%), number hatched (22%), the ratios of number hatched to eggs laid (20%) and to eggs set (18%),

hatchling survival (21%), and the proportion of survivors to eggs set (18%). No treatment-related effects on any adult parameter were observed.
- Aspiration hazard: No data available.

Likely routes of exposure
- /LABORATORY ANIMALS: Acute Exposure/ In an acute inhalation study ..., five male and five female Sprague-Dawley Crl:CD BR strain rats were exposed (nose only) for 4 hr to a dust aerosol of fluopicolide (purity 98.3% ...) at an analytical concentration of 5.16 mg/L (nominal concentration 9.09 mg/L). The rats were observed for 14 days after exposure, then killed and autopsied. Parameters monitored included mortality, clinical signs and weekly body weights. The characteristics of the achieved atmosphere were as follows: mean achieved atmospheric concentration, 5.16 +/- 0.38 mg/L; mass median aerodynamic diameter (MMAD), 3.37 um; and geometric standard deviation, 2.09. The respirable fraction (percentage <4 um) was 59%. There was no mortality during the exposure and observation period. Common observations noted both during and after exposure included wet fur, hunched posture, piloerection and increased respiratory rate. Isolated occurrences of noisy respiration and red/brown staining around the snout or eyes were also seen. Rats recovered quickly, appearing normal on the first day after exposure. Normal body weight gain was noted during the study. No gross abnormalities were noted for 9 of 10 rats. One male showed dark foci on its lungs.

Symptoms related to the physical, chemical and toxicological characteristics
- IDENTIFICATION AND USE: Fluopicolide is a beige solid used as a fungicide. HUMAN STUDIES: In primary human lymphocyte culture treated with fluopicolide no treatment-related increase in chromosomal aberrations was evident with or without activation. ANIMAL STUDIES: Fluopicolide was slightly irritating to the rabbit eye. Fluopicolide was not irritating to rabbit skin. Fluopicolide was not a skin sensitizer in a guinea-pig Magnusson and Kligman test. Fluopicolide has moderate toxicity with no deaths noted in male or female rats at doses of > 2000 mg/kg when given orally, and > 4000 mg/kg dermally. Rats were exposed (nose only) for 4 hr to a dust aerosol of fluopicolide at a concentration of 5.16 mg/L. The rats were observed for 14 days after exposure, then killed and autopsied. There was no mortality during the exposure and observation period. Common observations noted both during and after exposure included wet fur, hunched posture, piloerection and increased respiratory rate. Weight gain was markedly decreased in male and female rats in a subchronic study at doses of 1668 mg/kg/day and 1673 mg/kg/day), respectively. Male and female rats also experienced reduced body weight gain in a subchronic neurotoxicity study at doses of 780.6 and 125.2 mg/kg/day, respectively. There was no effect on weight gain in dogs or mice in subchronic studies. Besides effects on body weight and body weight gain, no definitive cross-species target organ was identified in subchronic studies with fluopicolide. As in the subchronic studies, the main effect in the chronic studies was a decrease in body weight gain with no definitive cross-species target organ identified. No evidence for carcinogenicity was seen in rats administered fluopicolide in food for 24 months. No evidence of neurotoxicity was seen in acute or subchronic oral rat neurotoxicity studies with fluopicolide. In developmental studies in rats and rabbits, at the same dose affecting the dam, 700 mg/kg in rats and 60 mg/kg in rabbits, fetal growth was affected in both species and observed as decreases in body weight and crown-rump length. Also, at 700 mg/kg, delays in fetal ossification and increased incidence of skeletal malformations were observed in rat fetuses, with neither of these effects seen in rabbit fetuses. No external or visceral abnormalities were observed in either species. Reproductive performance was not affected in a two-generation reproduction toxicity study in which fluopicolide was administered to male and female rats. In Salmonella typhimurium strains TA98, TA100, TA1535, TA1537 and Escherichia coli WP2 uvrA treated with fluopicolide there was no increase in the incidence of reverse mutations. ECOTOXICITY STUDIES: Fluopicolide is highly toxic to estuarine/marine fish and is highly toxic to moderately toxic to freshwater fish. Bobwhite quail and mallard duck chronic reproduction toxicity studies demonstrated significant reductions in multiple reproductive endpoints at the highest treatment level (1020 mg a.i./kg diet), including viable embryos (14%), live embryos (15%), number hatched (22%), the ratios of number hatched to

eggs laid (20%) and to eggs set (18%), hatchling survival (21%), and the proportion of survivors to eggs set (18%).

SECTION 12: Ecological information

SECTION 12: Ecological information

12.1 Toxicity
Not available.

12.2 Persistence and degradability
Not available.

12.3 Bioaccumulative potential
Not available.

12.4 Mobility in soil
Not available.

12.5 Results of PBT and vPvB assessment
Not available.

12.6 Endocrine disrupting properties
Not available.

12.7 Other adverse effects
Not available.

SECTION 13: Disposal considerations

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/container in accordance with local/regional/national/international regulations. Do not discharge to drains or the environment.
Product waste: Dispose of as hazardous waste unless regulations indicate otherwise.
Contaminated packaging: Dispose of as unused product or according to local requirements.
Waste codes: Not available.

SECTION 14: Transport information

SECTION 14: Transport information

14.1 UN number
Not available.

14.2 UN proper shipping name
Not available.

14.3 Transport hazard class(es)
Not available.

14.4 Packing group
Not available.

14.5 Environmental hazards
Not available.

14.6 Special precautions for user
Not available.

14.7 Maritime transport in bulk according to IMO instruments
Not available.

SECTION 15: Regulatory information

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Not available.

SECTION 16: Other information

SECTION 16: Other information

Product name: Fluopicolide
CAS No.: 239110-15-7
Catalog No.: CS-AZ-00179
Supplier: Clearsynth Labs Ltd., Mumbai, India
Emergency phone: +91-22-245045900

Disclaimer: The information provided is based on data believed to be reliable; however, no warranty is expressed or implied regarding its accuracy or completeness. Users must determine suitability for their particular purpose and comply with all applicable laws and regulations.

Revision date: Not available.
Revision number: Not available.

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