

Valid 11/2002 - 01/2003

Fluka Chemie AG  
Postfach 260  
CH-9471 Buchs  
Switzerland  
Tel: 081 755 25 11 Fax. 081 756 54 49  
Night: 071 228 3600

M A T E R I A L S A F E T Y D A T A S H E E T

SECTION 1. - - - - - CHEMICAL IDENTIFICATION- - - - -

CATALOG #: 12115  
NAME: BENZIDINE

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -

CAS #: 92-87-5  
MF: C12H12N2  
EC NO: 202-199-1

SYNONYMS

BENZIDIN (CZECH) \* BENZIDINA (ITALIAN) \* BENZIDINE (ACGIH:OSHA) \*  
BENZYDYNA (POLISH) \* P,P-BIANILINE \* 4,4'-BIANILINE \* (1,1'-BIPHENYL)-  
4,4'-DIAMINE (9CI) \* 4,4'-BIPHENYLDIAMINE \* BIPHENYL, 4,4'-DIAMINO- \*  
4,4'-BIPHENYLENEDIAMINE \* C.I. 37225 \* C.I. AZOIC DIAZO COMPONENT 112  
\* P,P'-DIAMINOBIIPHENYL \* 4,4'-DIAMINOBIIPHENYL \* 4,4'-DIAMINO-1,1'-  
BIPHENYL \* P-DIAMINODIPHENYL \* 4,4'-DIAMINODIPHENYL \* P,P'-DIANILINE \*  
4,4'-DIPHENYLENEDIAMINE \* FAST CORINTH BASE B \* NCI-C03361 \* RCRA  
WASTE NUMBER U021 \*

SECTION 3. - - - - - HAZARDS IDENTIFICATION - - - - -

LABEL PRECAUTIONARY STATEMENTS

HIGHLY TOXIC (USA)  
VERY TOXIC (EU)  
VERY TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.  
CANCER SUSPECT AGENT.  
TARGET ORGAN(S):  
LIVER  
BLADDER  
DO NOT BREATHE DUST.  
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE  
PROTECTION.  
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE  
IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

SECTION 4. - - - - - FIRST-AID MEASURES- - - - -

IF INHALED, REMOVE TO FRESH AIR. IF BREATHING BECOMES DIFFICULT,  
CALL A PHYSICIAN.  
IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER  
FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND  
SHOES. CALL A PHYSICIAN.  
IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER  
FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING  
THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. - - - - - FIRE FIGHTING MEASURES - - - - -

EXTINGUISHING MEDIA  
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.  
SPECIAL FIREFIGHTING PROCEDURES  
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO  
PREVENT CONTACT WITH SKIN AND EYES.  
UNUSUAL FIRE AND EXPLOSIONS HAZARDS

INTO A PAPER CARTON.  
 AVOID RAISING DUST.  
 SECTION 7. - - - - - HANDLING AND STORAGE- - - - -  
 REFER TO SECTION 8.  
 SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - -  
 SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN.  
 CHEMICAL SAFETY GOGGLES.  
 SAFETY SHOWER AND EYE BATH.  
 HANDLE IN A CLOSED SYSTEM.  
 SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -  
 PHYSICAL PROPERTIES  
 BOILING POINT: 400 C  
 MELTING POINT: 115 - 120 C  
 VAPOR PRESSURE: 6.36 MMHG  
 SOLUBILITY:  
 ETHER, ALCOHOL  
 SPECIFIC GRAVITY: 1.25  
 SWISS POISON CLASS: 1\*  
 SECTION 10. - - - - - STABILITY AND REACTIVITY - - - - -  
 INCOMPATIBILITIES  
 WILL IGNITE ON CONTACT WITH RED FUMING NITRIC ACID.  
 HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS  
 THERMAL DECOMPOSITION MAY PRODUCE CARBON MONOXIDE, CARBON DIOXIDE,  
 AND NITROGEN OXIDES.  
 HAZARDOUS POLYMERIZATION  
 WILL NOT OCCUR.  
 SECTION 11. - - - - - TOXICOLOGICAL INFORMATION - - - - -  
 ACUTE EFFECTS  
 READILY ABSORBED THROUGH SKIN.  
 MAY BE FATAL IF INHALED, SWALLOWED, OR ABSORBED THROUGH SKIN.  
 EXPOSURE CAN CAUSE:  
 DAMAGE TO THE LIVER  
 DAMAGE TO THE KIDNEYS  
 BLOOD EFFECTS  
 OTHER SYMPTOMS OF EXPOSURE CAN INCLUDE NAUSEA, VOMITING, PAINFUL AND  
 IRREGULAR URINATION.  
 CHRONIC EFFECTS  
 INHALATION OR ABSORPTION THROUGH THE SKIN OF THE DUST HAS BEEN  
 RECOGNIZED AS A CAUSE OF BLADDER TUMORS.  
 TARGET ORGAN(S):  
 DAMAGE TO THE LIVER  
 DAMAGE TO THE KIDNEYS  
 RTECS #: DC9625000  
 BENZIDINE  
 TOXICITY DATA  
 ORL-RAT LD50:309 MG/KG NTIS\*\* PB214-270  
 ORL-MUS LD50:214 MG/KG NTIS\*\* PB214-270  
 IPR-MUS LD50:110 MG/KG PMRSDJ 1,682,1981  
 TARGET ORGAN DATA  
 SENSE ORGANS AND SPECIAL SENSES (TUMORS)  
 LIVER (TUMORS)  
 KIDNEY, URETER, BLADDER (HEMATURIA)  
 KIDNEY, URETER, BLADDER (BLADDER TUMORS)  
 BLOOD (TUMORS)  
 SKIN AND APPENDAGES (TUMORS)  
 TUMORIGENIC (CARCINOGENIC BY RTECS CRITERIA)  
 TUMORIGENIC (EQUIVOCAL TUMORIGENIC AGENT BY RTECS CRITERIA)  
 TUMORIGENIC (TUMORS AT SITE OF APPLICATION)  
 ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES  
 (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR  
 COMPLETE INFORMATION.  
 SECTION 12. - - - - - ECOLOGICAL INFORMATION - - - - -  
 DATA NOT YET AVAILABLE.  
 SECTION 13. - - - - - DISPOSAL CONSIDERATIONS - - - - -  
 DATA NOT AVAILABLE

SECTION 14. - - - - - TRANSPORT INFORMATION - - - - -

CONTACT FLUKA CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

SECTION 15. - - - - - REGULATORY INFORMATION - - - - -

EUROPEAN INFORMATION

EC INDEX NO: 612-042-00-2

VERY TOXIC

R 45

MAY CAUSE CANCER.

R 50/53

VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE

EPA GENETOX PROGRAM 1988, POSITIVE: CHO GENE MUTATION  
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY  
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES  
ON EPA IRIS DATABASE  
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001  
NIOSH ANALYTICAL METHOD, 1994: BENZIDINE, 5509; IN URINE, 8306  
NTP 9TH REPORT ON CARCINOGENS, 2000:KNOWN TO BE HUMAN CARCINOGEN  
OSHA ANALYTICAL METHOD #ID-65

U.S. INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.  
CALIFORNIA PROPOSITION 65:  
THIS PRODUCT IS OR CONTAINS CHEMICAL(S) KNOWN TO THE STATE OF  
CALIFORNIA TO CAUSE CANCER.

SECTION 16. - - - - - OTHER INFORMATION- - - - -

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO  
BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. SIGMA, ALDRICH,  
FLUKA SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING  
OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR  
PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE.  
COPYRIGHT 2001 SIGMA-ALDRICH CO.  
LICENSE GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY