

Date : April 19, 2005
MSDS No :
Product Name : N A O X - 3 3

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

• CHEMICAL PRODUCT NAME : N A O X - 3 3
• NAME OF MANUFACTURER/SUPPLIER : TODA KOGYO CORP. ONODA PLANT
• NAME OF SECTION : QUALITY ASSURANCE SEC
• ADDRESS : 1-1-1 Shinoki, Sanyoonoda, Yamaguchi, 756-0847 Japan
• TELEPHONE NUMBER : 0836-89-0007
• FAX NUMBER : 0836-89-0003

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE/MIXTURE : substance
• CHEMICAL NAME (GENERIC NAME) : Aluminium Magnesium Carbonate Hydroxide
Mg₆Al₂(OH)₁₆CO₃ · 4H₂O
• CAS REGISTRY NUMBER : 11097-59-9
• INGREDIENTS : Mg₆Al₂(OH)₁₆CO₃ · 4H₂O
• COMPOSITION : Mg₆Al₂(OH)₁₆CO₃ · 4H₂O
wt% 100.0

• CHEMICAL FORMULA (CONSTITUTIONAL FORMULA, STRUCTURAL FORMULA) :
Mg₆Al₂(OH)₁₆CO₃ · 4H₂O

• UN CLASS :
• UN No :

3. HAZARDS IDENTIFICATION

• CLASS NAME OF HAZARDOUS CHEMICALS FOR SDS IN JAPAN :
• PHYSICAL AND CHEMICAL HAZARDS : NO APPLICABLE INFORMATION WAS FOUND
• ADVERSE HUMAN HEALTH EFFECTS : NO APPLICABLE INFORMATION WAS FOUND
• ENVIRONMENTAL EFFECTS : NO APPLICABLE INFORMATION WAS FOUND

4. FIRST-AID MEASURES

• EYE CONTACT : WASH WITH LARGE AMOUNTS OF LOW PRESSURE WATER AND OBTAIN
MEDICAL ATTENTION
• SKIN CONTACT : WASH BY SOAP
• INHALATION : MOVE TO PLACE IN FRESH AIR AND OBTAIN MEDICAL ATTENTION
• INGESTION : GARGLE AND OBTAIN MEDICAL ATTENTION

5. FIRE-FIGHTING MEASURES

• EXTINGUISHING MEDIA : WATER
• SPECIFIC HAZARDS WITH REGARD TO FIRE-FIGHTING MEASURES :
APPLY WATER FROM A SAFE DISTANCE TO COOL AND PROTECT SURROUNDING AREA

6. ACCIDENTAL RELEASE MEASURES :

PERSONAL PRECAUTIONS : NO APPLICABLE INFORMATION WAS FOUND
ENVIRONMENTAL PRECAUTIONS : NO APPLICABLE INFORMATION WAS FOUND
SPILLAGE CONTROL : STEP TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILL.
CLEAN UP WITH A VACUUM CLEANER

7. HANDLING & STORAGE

• HANDLING : PROTECT AGAINST PHYSICAL DAMAGE. AVOID ROUGH HANDLING
OR DROPPING
• STORAGE : STORAGE INSIDE WAREHOUSE TO AVOID DIRECT SUN BEAM

8. EXPOSURE CONTROL/PERSONAL PROTECTION

• CONTROL PARAMETERS
ALUMINIUM, METALLIC, POWDER (as Al) : 5mg/m³ OSHA TWA (respirable particulate)
15mg/m³ OSHA TWA (total particulate) 5mg/m³ OSHA TWA (pyro powder) 10mg/m³
ACGIH TWA (metal particulate) 5mg/m³ ACGIH TWA (pyro powders) 5mg/m³ NIOSH
recommended TWA 10 hour (s) (respirable particulate) 10mg/m³ NIOSH recommen
ded TWA 10 hour (s) (total particulate) 5mg/m³ NIOSH recommended TWA 10 hour

(s) (pyro powders)
 measurement method: Particulate filter; Nitric acid; Atomic absorption
 spectrometry; NIOSH 111#7013, Aluminium

ENGINEERING MEASURES : USE WITH LOCAL EXHAUST VENTILATION

PERSONAL PROTECTIVE EQUIPMENT : FOR MOST CONDITIONS, NO RESPIRATORY
 RESPIRATORY PROTECTION PROTECTION SHOULD BE NEEDED; IN DUSTY
 ATMOSPHERES, USE AN APPROVED DUST
 RESPIRATOR.

EYE PROTECTION : PUT ON GOGGLES AS APPROPRIATE

HANDS PROTECTION : WEAR GLOVES

SKIN AND BODY PROTECTION :

9. PHYSICAL & CHEMICAL PROPERTIES

PHYSICAL STATE, FORM :
 APPEARANCE : POWDER
 COLOUR : WHITE
 ODOUR : NON ODOUR
 DENSITY : 2.0~2.4 (25°C)
 BOILING POINT : NOT APPLICABLE °C
 MELTING POINT :
 VAPOUR PRESSURE : NOT APPLICABLE Pa (°C)
 SOLUBILITY IN WATER : NEGLIGIBLE (°C)
 SOLUBILITY IN --- : DISSOLVED IN ACID (HYDROCHLORIC ACID) °C)

10. PHYSICAL HAZARD (STABILITY & REACTIVITY)

FLASH POINT : NOT APPLICABLE (NA)
 AUTOIGNITION TEMPERATURE : NOT APPLICABLE (NA)
 UPPER EXPLOSION LIMIT : NOT APPLICABLE (NA)
 LOWER EXPLOSION LIMIT : NOT APPLICABLE (NA)
 FLAMMABILITY : NOT APPLICABLE (NA)
 SPONTANEOUS COMBUSTIBILITY : NOT APPLICABLE (NA)
 REACTIVITY WITH WATER : NOT APPLICABLE (NA)
 OXIDIZABILITY : NOT APPLICABLE (NA)
 SELF-REACTIVITY : NOT APPLICABLE (NA)
 STABILITY & REACTIVITY :

11. TOXICOLOGICAL INFORMATION

CORROSIVE PROPERTY : NO APPLICABLE INFORMATION WAS FOUND
 IRRITANT PROPERTY : NO APPLICABLE INFORMATION WAS FOUND
 ALLERGENIC AND SENSITIZING EFFECTS : NO APPLICABLE INFORMATION WAS FOUND
 ACUTE TOXICITY : NO APPLICABLE INFORMATION WAS FOUND
 SUB-CHRONIC TOXICITY : NO APPLICABLE INFORMATION WAS FOUND
 CHRONIC TOXICITY : NO APPLICABLE INFORMATION WAS FOUND
 CARCINOGENIC EFFECTS : NO APPLICABLE INFORMATION WAS FOUND
 MUTAGENIC EFFECTS : NO APPLICABLE INFORMATION WAS FOUND
 EFFECTS ON THE REPRODUCTIVE SYSTEMS : NO APPLICABLE INFORMATION WAS FOUND
 TERATOGENIC EFFECTS : NO APPLICABLE INFORMATION WAS FOUND

12. ECOLOGICAL INFORMATION

BIODEGRADABILITY : NO APPLICABLE INFORMATION WAS FOUND
 BIOACCUMULATION : NO APPLICABLE INFORMATION WAS FOUND
 FISH TOXICITY : NO APPLICABLE INFORMATION WAS FOUND

13. DISPOSAL CONSIDERATION : NO APPLICABLE INFORMATION WAS FOUND

14. TRANSPORT INFORMATION :

KEEP AWAY FROM OXIDIZING MATERIALS AND SOURCE OF IGNITION
 FOLLOW ALL REGULATIONS IN YOUR COUNTRY

15. REGULATORY INFORMATION : FOLLOW ALL REGULATIONS IN YOUR COUNTRY

16. OTHER INFORMATION :