



Marine Catalyst

For Distillate Fuel

Product Description Sheet

Technol Marine Catalyst is engineered to combat the major problems of #2 fuel oil associated with industrial applications. These are incomplete combustion, fuel stabilization, sludge buildup, water contamination, algae, and tank / fuel system rust and corrosion. **Technol Marine Catalyst** is the most cost effective Fuel Combustion Catalyst which improves both fuel and equipment performance while reducing maintenance intervals, costs, and downtime. This product is not recommended or registered with the EPA for use in diesel engines.

Improves fuel combustion and efficiency - Our combustion improver provides for higher burning rates and temperatures to be achieved for a more complete fuel burn during the combustion process. Producing less soot and cleaner emissions. The results is less fuel used to produce the same amount of heat along with less efficiency robbing deposits on boiler tubes and backend equipment.

Technol Marine Catalyst enables a fuel of poor quality to burn as a premium fuel.

Stabilizes your fuel - Non-stabilized, oxidized and degraded fuel has less heating value and produces varnish, gum and sludge particulate contamination. This causes increased emission and soot levels, nozzle coking, filter and screen plugging which are often associated with the by-products of degraded fuel due to a lack of fuel stabilization.

Sludge Dispersants break up and dissolve fuel sediment sludge small enough that most pass harmlessly through filters and injectors, in time cleaning the entire fuel system. A clean fuel system enables equipment to operate at

peak efficiency and performance with an optimally atomized fuel spray. This leads to an increase in fuel economy.

De-emulsifies water - water is inherent in fuel oil, and can be introduced at any point between the refinery to delivery. **Technol Marine Catalyst** causes conditioned fuel to “shed water”. Water is rejected to the bottom of the tank for easy removal by pumps. This results in cleaner fuel due to the ease of tank maintenance and overall fuel system cleanliness, while reducing rust, corrosion, and removing the environment needed for microbiological growth.

Controls Bacteria, Mold, Yeast, Fungus, and Algae - The secondary effects of the components used to stabilize fuel actually inhibit microbiological growth. A colony count after a 30 day incubation period of fuel and water resulted in a significant drop in biological activity compared to the base fuel alone over the same test period. If you are presently experiencing a specific fuel algae or fungus contamination problem, we recommend the fuel be treated first with **Biobor® JF Microbicide**. Once the contamination has been removed, **Technol Marine Catalyst** will help maintain a clean tank.

Rust and Corrosion inhibitor - The metals that corrode within heating systems are Steel, Iron, and Copper, so two different types of corrosion testing were performed. A modified ASTM D665 (MIL-I-25017) rust test, which showed no rusting. The ASTM D-130 Copper Strip Corrosion Test up to a two third (2/3) less corrosion compared to the base fuel alone.



Distillate Marine Fuel Combustion Catalyst

Features & Benefits

- Reduces harmful emissions and pollutants
- Reduces soot production and waste heat loss
- Reduces sludge formation and buildup
- Reduces maintenance, costs, and downtime
- Improves equipment efficiency
- Improves “water shedding”
- Improves system-wide output performance
- Lessens deposits on boiler tubes and backend equipment
- Maintains or improves the fuel’s heating value
- Combats microbiological and algae formation
- Inhibits fuel system rust and corrosion
- Cleans the entire system from fuel tank to injectors.

Used by and in:

▲ *Maritime Fleets* ▲ *Charter & Pleasure Boat Owners* ▲
▲ *Dockside Marine Fueling Depots* ▲ *Fuel Cleaning Services* ▲



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Technical Data Sheet

Recommended uses

- ◆ **Usage ratio**
- ◆ Use at the ratio of 1 gallon to every 3,000 gallons of fuel.
- ◆ **Warm Climate**
- ◆ Apply the correct ratio of [Technol Marine Catalyst](#) directly into the tank before refueling to insure faster mixing and distribution.
- ◆ **Cold Climate**
- ◆ Apply proactively, pour the correct ratios of [Technol Marine Catalyst](#) and [Technol 050 Cold Flow Improver](#) directly into the tank before refueling to insure faster mixing and distribution.

Physical & Chemical Properties

Appearance: Brown Liquid
Viscosity: 2.4 cSt @ 40°C / 104°F
Flash Point: 56°C (126°F) Closed Cup.
Spec. Gr.: 0.91 g/cm³

Rust and Corrosion Inhibitors

The main metals that corrode within heating systems are Steel and Copper, so two different types of corrosion tests were performed. A modified ASTM D665 (MIL-I-25017) rust test, which resulted in no rust.

The ASTM D-130 Copper Strip Corrosion Test, which resulted in as much as two third (2/3) less corrosion when compared to the

base fuel alone.

Improves Fuel Combustion & Efficiency

Iron, the main combustion improving component, provides for higher burning rates and temperatures to be achieved for a more complete fuel burn, producing less soot and cleaner emissions. This allows less fuel to be used to produce the same amount of heat when compared to unconditioned fuel.

[Technol Marine Catalyst](#) enables a fuel of poor quality to burn as a premium fuel.

Sludge Vs. Fuel Stabilization

Fuel starts to degrade soon after it is produced and sludge forms as fuel degrades. From the refineries to the oil dealer and ultimately to your tank, fuel oil is stored, aged, degrades causing sludge and lowering the fuels heat value.

Summer heat and stagnant storage conditions speed up fuel degradation. Before you get a change to burn any oil, it has aged and degrade.

Using [Technol Marine Catalyst](#) with every refueling will clean the fuel system, improve the fuels heat value and stabilize the fuel, keeping the fuel fresh and ready for use. Year round fuel stabilizing is key to a clean and powerful fuel and fuel system.



Marine Catalyst for Distillate Fuel

Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Rules & Regulations
 Revision: 10/17/2015 Issued: 06/01/2006 Supersedes: 11/15/2013

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT FORM: Liquid Substance
 TRADE NAME: **TECHNOL MARINE CATALYST FOR DISTILLATE FUEL**
 CHEMICAL NAME: Proprietary mixture of petroleum distillates
 COMPANY: Technol Fuel Conditioners, Inc.
 145 Wyckoff Road
 Eatontown, NJ 07724
 Phone: 1.800.645.4033
 EPA REGISTRATION: #1642-0004 - Approved for On-Road and Off-Road Fuel Consumption
 EMERGENCY PHONE: Chemtrec: 1.800.424.9300 - within USA and Canada
 Chemtrec: 1.703.527.3887 - outside USA and Canada

SECTION 2. HAZARDS IDENTIFICATION

GHS SIGNAL WORD: **WARNING!**

GHS HAZARD PICTOGRAMS:



IRRITANT



COMBUSTIBLE



HEALTH



ENVIRONMENT

GHS CLASSIFICATIONS:

PHYSICAL: H227: Combustible liquid
 HEALTH: H302: Harmful if swallowed
 H312: Harmful in contact with skin
 H320: Can cause eye irritation
 H336: May cause drowsiness or dizziness
 H373: May cause damage to organs through prolonged or repeated exposure
 ENVIRONMENTAL: H402: Harmful to aquatic life

GHS PRECAUTIONARY STATEMENTS:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P233: Keep container tightly closed.
 P261: Avoid breathing dust/fumes/gas/mist/vapors/spray [As modified by IV ATP].
 P262: Do not get in eyes, on skin, or on clothing.
 P273: Avoid release into the environment.
 P301+P331: IF SWALLOWED, Do NOT induce vomiting.
 P410+P411: Protect from sunlight. Store at temperatures between 45°F [7.2°C] and 85°F [29.4°C].

SECTION 3. COMPOSITION AND INGREDIENTS INFORMATION

Chemical Name	Hazard Data	% By Weight	CAS Number	SARA 311	SARA 312	SARA 313
Aromatic Naphtha	Not Available	60% - 100%	64742-94-5	NO	NO	NO
Alkyl Phenol	Not Available	10% - 20%	Proprietary	NO	NO	NO
1,2,4-Trimethylbenzene	Not Available	5% - 10%	95-63-6	NO	NO	NO



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SECTION 4. FIRST AID MEASURES

- INHALATION:** Overexposure can cause dizziness, lack of coordination, and breathing complications, unlikely to occur under normal usage conditions. Handlers should always wear a self-contained breathing apparatus in the positive mode with a full face-piece due to the likelihood of fumes, smoke, and hazardous component decomposition. Remove to fresh air and deploy artificial respiration if not breathing. Get medical attention.
- SKIN CONTACT:** Can cause irritation of exposed skin due to defatting of skin tissue. Handlers should always wear rubber gloves. Wash exposed skin vigorously with general soap and water. Get medical attention if skin irritation persists.
- EYE CONTACT:** Can cause irritation of exposed eye tissue. Handlers should always wear splash-proof goggles. Rinse eyes with cool flowing water for at least 15 minutes and get immediate medical attention.
- INGESTION:** Can cause irritation of the gastrointestinal tract and possible fatal kidney liver damage. DO NOT INDUCE VOMITING. Deploy artificial respiration if not breathing. Get immediate medical attention.

SECTION 5. FIREFIGHTING MEASURES

Special Hazards and Procedures:

This product poses no unusual fire fighting problems. It will burn if involved in a fire. Oxides of sulfur (SO₂) will be given off while burning. Combustion may produce oxides of carbon and oxides of calcium. Water may be used to cool fire-exposed containers and structures but is not a suitable extinguishing media.

Protective Equipment:

As in any fire, firefighters must be equipped to prevent breathing of vapors or products of combustion. Wear an approved self-contained goggled breathing apparatus, protective gloves and clothing.

Extinguishing Media:

Dry chemical, CO₂ and foam are suitable. Water jets or any water-based fluid are not suitable. Closed containers may be cooled with water. Treat large fires as an oil fire. Oil will float on water and can cause fire to spread. Heat from fire can generate flammable vapor.

SECTION 6. ACCIDENTAL RELEASE PRECAUTIONS

- PERSONAL:** Wearing suitable protective equipment, eliminate sources of ignition and open nearby windows to ventilate the problem area.
- ENVIRONMENTAL:** Product has very low solubility in water. Prevent from entering sewer system, surface water or soil.
- FOR SPILL CLEAN-UP:** Shut off leak and dike up large spills. Absorb with an inert material such as sand, soil or vermiculite. Sweep up absorbent and dispose in accordance with regulatory requirements.

SECTION 7. PRODUCT HANDLING & STORAGE

- HANDLING:** This product is best stored in its original container. Steel or HDPE containers are recommended replacements and electrically bond and ground all containers and equipment. Avoid contact with eyes, skin and clothing. Avoid breathing vapors, aerosol and mists. Use with adequate ventilation and wash thoroughly after handling. Never use pressure to empty drums.
- STORAGE:** Full or partially-filled containers should always be kept upright and away from strong oxidizing agents. This product will pump down to 10°F [-12.2°C]. Nonetheless, it is recommended that full or partially-filled containers be stored in a cool dry place between 45° - 85°F [7.2° - 29.4°C]. Store in original container if possible, and keep all chemical containers away from direct sunlight and tightly closed when not in use.



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SECTION 8.

EXPOSURE CONTROL/PERSONAL PROTECTION

VENTILATION: None normally required. Use additional ventilation if needed to control vapor concentrations particularly if a mist is generated or fumes from hot material are present.

RESPIRATORY: None required if area adequately ventilated. Use appropriate respiratory protection if used in confined areas. If used in an application where a mist may be generated, observe a TWA/PEL of 5 mg/m³ (OSHA, ACGIH) for a mineral oil mist. Use a respirator with dual organic vapor/mist and particulates cartridge if vapor concentration exceeds permissible exposure limit.

SKIN PROTECTION: Use neoprene-type gloves and apron.

EYE PROTECTION: Wear chemical safety goggles or a full-plate face shield. Contact lenses should not be worn.

SECTION 9.

PHYSICAL & CHEMICAL PROPERTIES

Appearance:	Brown Liquid	Odor:	Camphor Characteristic
Boiling Point:	Not Established	Density at 25°C (gm/cm ³):	0.92
Vapor Pressure:	0.19 @ 25°C (mm Hg)	Vapor density (Air = 1):	< 1
Solubility in Water:	Not Established	Solubility in Organic Solvents:	Soluble
pH:	Not Applicable	Flash point, COC (ASTM D-93):	132°F [56°C]
Pounds per Gallon:	7.6	Evaporation Rate:	Not Established
Freeze Point:	10°F (-12.2°C)	Volatiles By Volume @ 68°F (20°C):	Not Established

SECTION 10.

STABILITY AND REACTIVITY

This product is stable and not subject to hazardous polymerization.

Hazardous Decomposition Products: Oxides of carbon (carbon monoxide and carbon dioxide), oxides of hydrogen (contaminated and hazardous water), and oxides of Nitrogen can occur when exposed to heat at 350°F (176.7°C).

Incompatible materials: Strong oxidizers such as hydrogen peroxide, oxidizing chlorine, and bromine compounds (e.g. chlorine bleach) and chromic acid should be avoided.

Conditions to avoid: Extreme heat and sources of fire or ignition.

SECTION 11.

TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE: Eye contact, skin contact, inhalation of vapors, and ingestion.

ACUTE TOXICITY: The handling procedures and safety precautions in this SDS should be followed to minimize employee exposure.

CHRONIC EFFECTS: Can cause eye, skin and gastrointestinal irritation. Irritation of tissue, defatting of skin, gastrointestinal irritation, Kidney and Liver damage.

SYMPTOMS: Irritation of exposed tissue and organs, blurriness of vision, dizziness, fainting, and lack of physical coordination.

LD50: Not Established.

NTP/IARC/OSHA: This product and none of its components are listed as a carcinogens, mutagens, or teratogens.

SECTION 12.

ECOLOGICAL INFORMATION

No specific aquatic data is available. This product should be kept away from all bodies of water, and prevented from entering sewer streams. It may be necessary to extract soil where large spills have occurred. No specific Bioaccumulation data is available. No specific Terrain Migration data is available.



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SECTION 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: This product should be incinerated as a waste oil, at a certified and registered waste disposal site, in compliance with all federal, state and local regulations and requirements.

RCRA STATUS OF UNUSED PRODUCT: Dispose of this product in permitted hazardous wastes sites. Keep this product away lakes, streams, rivers, ponds, sewer systems, and any other body of water.

SECTION 14. TRANSPORTATION INFORMATION

US DOT Classification:



NA 1993, Combustible Liquid, NOS (placard required on ground carriers): not regulated if shipped or transported in containers less than 450 liters (119 Gallons US).

Proper Shipping Name: Proprietary mixture of petroleum derivatives
Shipping Class: 65 (regardless of package or container size)
Packing Group: III (regardless of package or container size)
NMFC Rating: 155250-02



UN 1993, Flammable Liquid, NOS (placard required on ground carriers): If shipped in containers of 450 liters or more (120 Gallons US or more), by air or by sea.

Proper Shipping Name: Petroleum Distillates, NOS
Shipping Class: 65 (regardless of package or container size)
Packing Group: III (regardless of package or container size)

IMDG Classification:

This product is not known to be a marine pollutant according to the International Marine Dangerous Goods Codes, however it can cause harm to aquatic life.

ICAO Classification:

Proper Shipping Name: Petroleum Distillates, NOS
Class: 3
UN/NA ID #: NA 1993
Packing Group: III

IBC Classification:

Guidance on transporting this product in bulk by ocean freight can be obtained from Annex II of Marpol 73/78 and the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.

All Transportation Methods:

Keep packages and containers upright and tightly sealed at all time during transportation. Do not expose packages and containers to direct sunlight, extreme heat, or any source of ignition. All product should be transported in their original packaging and containers. Rubber, plastic or other lined containers should not be used.

SECTION 15. REGULATORY INFORMATION

This material and all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act.

California Prop 65: This product contains ingredients for which the State of California has found to cause cancer, birth defects, or other reproductive hard: Naphthalene, Benzene.

OSHA: This product contains hazardous ingredients as defined by OSHA Hazard Communications Standard 29CFR1900.1200.



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SECTION 16.

OTHER INFORMATION

This product has not been tested in long term, chronic exposure, therefore, the handling procedures and safety precautions in the SDS should be followed to minimize employee exposure.

Label Information for the United States: CAUTION: May cause skin and eye irritation. Do not swallow. Avoid eye and skin contact. Wash thoroughly after handling. Avoid contact with clothing. Wash clothing before reuse. Keep out of reach of children. Keep containers tightly closed when not in use. Avoid breathing mists or sprays of this product or its solutions.

EMPLOYER RESPONSIBILITY

Employers must ensure that these Material Safety Data Sheets are readily accessible and available to all their employees responsible for the storage, handling, and manipulation of this product. This can be done in many ways, such as organizing all chemicals SDS in freely available binders kept in areas where the chemicals are stored, or on computers the handling employees have access to without the inconvenience of leaving the work or storage area. We strongly recommend the binder method which keeps them available in the event of a power outage or other emergency inhibiting computer use. Employers may want to consider designating two persons (primary and backup) responsible for obtaining and maintaining SDS records. If the employer does not have a particular SDS for a chemical commodity, the employer or responsible designate should contact the chemical manufacturer to obtain one prior to product use.

REFERENCES

OSHA, 29 CR 1910.1200(g) and Appendix D.

United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS), 3rd Revised Edition, United Nations, 2009. These references and other information related to the revised Hazard Communication Standard can be found on OSHA's Hazard Communication Safety and Health Topics web site at: <http://www.osha.gov/dsg/hazcom/index.html>.

DISCLAIMER

This brief provides a general overview of the Material Safety Data Sheet requirements as mandated by the Hazard Communication Standard 29 CFR 1910.1200(g) and Appendix D of 29 CFR 1910.1200. It does not alter or determine compliance responsibilities in the standard or the Occupational Safety and Health Act of 1970. Since interpretations and enforcement policy may change over time, the reader should consult current OSHA interpretations, decisions by the Occupational Safety and Health Review Commission, and the courts for additional guidance on OSHA compliance requirement. Please note that states with OSHA-approved state plans may have additional requirements for chemical safety data sheets, outside of those outlined above. For more information on those standards, please visit: <http://www.osha.gov/dcspp/osp/statestandards.html>.

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Marine Catalyst for Distillate Fuel Application Chart

This chart indicates the availability of container sizes and specifies the ounces or gallons of product needed for the amount of fuel to be conditioned. Container quantities have been maximized in accordance with skid dimensions. Please see the *Packaging & Shipping* notation at the bottom. We recommend the "Initial" dose amounts for first-time applications.

Container oz:	8oz. = 8	Quart = 32	Gal. = 128	Pail = 640	Drum = 6,912	Tote = 35,200
Available/Skid Max:	NO	NO	NO	YES 20	YES 216	YES 275
Application Dose:				Initial Maintain	Initial Maintain	Initial Maintain
Gallon Ratio: 1:	→ →	→ →	→ →	1,500 3,000	1,500 3,000	1,500 3,000
				Oz/Gal to Apply	Gallons to Apply	Gallons to Apply
G 50	→ →	→ →	→ →	5oz 3oz	← ←	← ←
A 100	→ →	→ →	→ →	9oz 5oz	← ←	← ←
L 200	→ →	→ →	→ →	18oz 9oz	← ←	← ←
L 500	→ →	→ →	→ →	43oz 22oz	← ←	← ←
O 1,000	→ →	→ →	→ →	86oz 43oz	← ←	← ←
N 2,000	→ →	→ →	→ →	2gal 1gal	2gal 1gal	← ←
S 3,000	→ →	→ →	→ →	2gal 1gal	2gal 1gal	← ←
S 4,000	→ →	→ →	→ →	3gal 2gal	3gal 2gal	← ←
O 5,000	→ →	→ →	→ →	4gal 2gal	4gal 2gal	4gal ←
F 7,500	→ →	→ →	→ →	5gal 3gal	5gal 3gal	5gal ←
F 8,000	→ →	→ →	→ →	6gal 3gal	6gal 3gal	6gal ←
F 9,000	→ →	→ →	→ →	6gal 3gal	6gal 3gal	6gal ←
F 10,000	→ →	→ →	→ →	7gal 4gal	7gal 4gal	7gal 4gal
U 12,000	→ →	→ →	→ →	8gal 4gal	8gal 4gal	8gal 4gal
E 14,000	→ →	→ →	→ →	10gal 5gal	10gal 5gal	10gal 5gal
L 15,000	→ →	→ →	→ →	10gal 5gal	10gal 5gal	10gal 5gal
T 20,000	→ →	→ →	→ →	14gal 7gal	14gal 7gal	14gal 7gal
T 25,000	→ →	→ →	→ →	17gal 9gal	17gal 9gal	17gal 9gal
O 45,000	→ →	→ →	→ →	30gal 15gal	30gal 15gal	30gal 15gal
B 50,000	→ →	→ →	→ →	34gal 17gal	34gal 17gal	34gal 17gal
B 75,000	→ →	→ →	→ →	50gal 25gal	50gal 25gal	50gal 25gal
E 80,000	→ →	→ →	→ →	54gal 27gal	54gal 27gal	54gal 27gal
C 90,000	→ →	→ →	→ →	60gal 30gal	60gal 30gal	60gal 30gal
C 95,000	→ →	→ →	→ →	64gal 32gal	64gal 32gal	64gal 32gal
O 100,000	→ →	→ →	→ →	67gal 34gal	67gal 34gal	67gal 34gal
N 110,000	→ →	→ →	→ →	74gal 37gal	74gal 37gal	74gal 37gal
D 115,000	→ →	→ →	→ →	77gal 39gal	77gal 39gal	77gal 39gal
I 119,900	→ →	→ →	→ →	80gal 40gal	80gal 40gal	80gal 40gal
T 135,000	→ →	→ →	→ →	90gal 45gal	90gal 45gal	90gal 45gal
I 159,500	→ →	→ →	→ →	→ 54gal	107gal 54gal	107gal 54gal
O 200,000	→ →	→ →	→ →	→ 67gal	134gal 67gal	134gal 67gal
N 240,000	→ →	→ →	→ →	→ 80gal	160gal 80gal	160gal 80gal
E 320,000	→ →	→ →	→ →	→ →	214gal 107gal	214gal 107gal
D 350,000	→ →	→ →	→ →	→ →	234gal 117gal	234gal 117gal
D 400,000	→ →	→ →	→ →	→ →	267gal 134gal	267gal 134gal

Packaging & Shipping : 12 8oz bottles/case (where available) 60 cases per skid; 12 quart bottles/case (where available) 40 cases per skid, 4 gallons/case (where available) 40 cases per skid, 20 pails/skid, 4 drums/skid, one 275-gallon HDPE tote bin per skid (where available). All small packaged items are induction-sealed. Pails and drums are steel with closed heads. All containers and skids are non-returnable. Please recycle in accordance with local statutes. When seeing an arrow, following the direction for the recommended next larger or smaller container size.



Marine Catalyst for Distillate Fuel Supplemental Information

Certificate of Analysis

**TECHNOL MARINE CATALYST
FOR DISTILLATE FUEL**

LOT #136334

PROPERTY	SPECIFICATION	RESULT	TEST METHOD
APPEARANCE:	Brown liquid with no sediment or turbidity	PASS	Visual
SPECIFIC GRAVITY @25°C:	1.040 – 1.090	1.078	ASTM D1963
LBS/ GALLON @25°C:	8.66 – 9.04	8.95	ASTM D1963
FLASH POINT, PMCC:	61°C - 64°C	61°C [141.8°F]	ASTM D93
VISCOSITY, GH	1.46 – 4.03	2.745	Gardner-Holdt
NON-VOLATILE MATTER	68% - 78%	73%	ASTM D1644

COMMENTS: *Proprietary mixture of Iron-2, phosphates and Naphtha.*

CERTIFICATION: *We certify that this product meets our specifications. The above particulars do not release the customers from their own obligation to carry out an inspection of the goods received. The general conditions of sale apply to this contract.*

Specification ID: 1010/3050250010013 BL #: Not Available

Tested & Approved By: Borchers OMG

Approval Date: December 4, 2015