
J. DERENZO COMPANY

Arlington DPW
Dust and Odor Control Plan

Description

During the course of the planned earth work at the Arlington Department of Public Works (DPW) project it is possible that excess dust or odors could be generated. The following information provides the measures that will be taken, as necessary, to maintain dust and odors levels in compliance with local, state, and federal regulations, the project Health and Safety Plan, and the project Specification Section 01 14 19.16 Dust Control, and Section 01 14 20 Odor Control.

Throughout the project standard operating procedures will be used to minimize the creation of airborne dust and odors during pre-excavation, mass excavations for the foundations, selective excavation for grade beams, wall footings, underground plumbing, and utility installations. If the standard operating procedures for minimizing dust and odor generation are not sufficient to maintain satisfactory work conditions the follow procedures will be implemented.

Monitoring

Dust:

The Project limit for fugitive dust (PM₁₀ – particulate matter with an aerodynamic diameter less than or equal to 10 microns) is equal to 80% of the National Ambient Air Quality Standard of 150 µg/m³ for a 24-hour Time Weight Average (TWA) of 120 µg/m³. This level is typically associated with visible dust emissions and monitoring will be done qualitatively (visually) to determine compliance. If visible dust is observed quantitative measures can be taken to determine the airborne dust levels.

Real-time air monitoring devices (PDR-1000AN or equivalent) will be used, as necessary, to analyze airborne dust concentrations of PM₁₀. Personal air monitoring will be implemented, as necessary, by Cashins & Associates (Cashins) during activities resulting in the generation of visible dust. If elevated concentrations above background are indicated, the monitoring frequency will be increased, as described in the Health and Safety Plan.

Odor:

Based the information provided to date odorous soils disturbed during earth work activities will likely be associated with petroleum residuals and naphthalene. The "Hazardous Materials Health and Safety Plan, Arlington Department of Public Works, Redevelopment Project, 51 Grove Street, Arlington, Massachusetts", prepared by Cashins & Associates, Inc has identified an odor threshold for naphthalene of 0.038 ppm and a Project Specific Action Limit of 10 ppm as an 8-hour TWA. Cashins also identified they will perform monitoring for compliance with the Health and Safety Plan using a photoionization detector (PID).

Mitigation

In situations where the Action Limits above are exceeded, or if a nuisance condition exists on Site, the following mitigation measures will be implemented to remove the exceedance or nuisance condition.

Dust:

Methods that can be used to minimize the generation of dust include, but are not limited to, the following:

- Water spray, if used, shall be free from oil, acids, hazardous materials, and shall not be brackish or injurious to vegetable matter. If water spray is used, runoff, if any, must be collected and managed as construction water.
- Expedient restoration of surfaces.
- Implementation of prudent material handling practices.
- If calcium chloride is used it will conform to the requirements of AASHTO-M 144, Type I or Type II and the Specification for calcium chloride, ASTM D98. If used, calcium chloride will be applied uniformly at a 1 ½ pounds per square yard ratio.
- Wind screens, if used, shall be made of durable fabric mesh of 50 percent porosity or solid barriers intended to block the passage of the wind.
- The use of petroleum-containing compounds for dust control is prohibited.

Wet suppression shall be used to control dust within the project action limits. Wet suppression methods will consist of water hoses, sprinklers, and tanks, or tank trucks capable of regulating flow rates, uniform spray and will be equipped with positive shut-off. At a minimum, all excavated soil will be managed, staged, and stored in accordance with Section 310 CMR 40.0030 of the Massachusetts Contingency Plan (MCP).

Vehicle traffic leaving the Site will be free of mud and dirt to prevent material tracking onto the surrounding public right of way. Material leaving the Site will be properly secured and completely covered, with appropriate freeboard space, before leaving. Any material spilled onto public roadways or walkways will be immediately cleaned up using appropriate methods for the size and type of spill. Dry power sweeping is prohibited. Any cleanup activities will be subject to the same dust levels as the on-Site project.

Odor:

If nuisance odors or vapors are discovered during soil excavation activities, actions that should be taken include, but are not limited to, the following:

- Excavated odorous soil (including trench soils) or contaminated soils (e.g., metals, semi-volatile organic compounds) that must be temporarily stockpiled shall be stored and covered with 10 mil polyethylene sheeting in a secured manner to prevent exposure to humans and the environment.
- Excavated soil stored at the site of generation or at a temporary storage location shall be placed entirely on a base composed of an impermeable material, and shall be immediately covered with the same material or other suitable material so as to minimize the infiltration of precipitation, volatilization of contaminants, and erosion of the stockpile. Any cover material used shall be properly secured and possess the necessary physical strength to resist tearing by the wind.
- Any failure of materials or procedures used in employing the base layer or cover layer shall be immediately repaired, replaced, or re-secured to minimize precipitation infiltration, volatilization, and erosion/runoff of the excavated soil.
- Vapor suppressant foam (Rusmar) may be successful in reducing odors or vapors from naphthalene. This may be necessary during excavation of certain soils. Nuisance odors related to petroleum impacted soil are possible, and potential off gassing of hydrogen sulfide from organic deposits are also possible.
- Temporary vapor barrier fencing may be required. If required, it will consist of 7-foot-high chain link fencing with a woven AASHTO-M-228 geotechnical fabric manufacture by American Engineering Fabrics, Inc., or equivalent.

During excavations, the intent will be to live load the excess material for disposal at an approved landfill. This will minimize the exposure of the material to the jobsite. Rusmar products, including safety data sheets, outlined in the attachments of this submittal will be used as necessary to spray the material as it is being excavated out. It may also be used to treat the exposed surface of virgin material at the end of the work day.



RUSMAR INCORPORATED

PRODUCT SELECTION GUIDE

Compatible Products

(can be fed from same machine, sequentially without machine being flushed clean)

Product	Most Common Use	Duration	Recommended Depth	Most Common Dilution	Coverage per 450lb Drum at Recommended Depth	Color	Scent
AC-645	Active excavation and short-term emission control	12-17 Hours	3 Inches	6.5 : 1	4,500 ft ²	White	• Unscented • Wintergreen* • Vanilla*
AC-904	Medium-Term Emission Control & Sealing	15-30 Days	2 Inches	Direct Use	800-900 ft ²	• Black • Red* • Green* • Brown*	• Unscented • Wintergreen* • Vanilla*
AC-912	Long-Term Emission Control & Sealing	60-90 Days	2 Inches	Direct Use	800-900 ft ²	• Black • Red* • Green* • Brown*	• Unscented • Wintergreen* • Vanilla*
AC-920	Extreme-Term Emission Control & Sealing	90-180 Days	2 Inches	Direct Use	800-900 ft ²	• Black • Red* • Green* • Brown*	• Unscented • Wintergreen* • Vanilla*
AC-667SE	Landfill Daily Cover	24-48 Hours 72 Hours	3 Inches 6-7 Inches	6.5 : 1 4 : 1	4,500 ft ² 1,830 ft ²	White/Tan	Cinnamon

*Indicates a Special Order item

RUSMAR INCORPORATED • 216 Garfield Avenue • West Chester, PA 19380

Toll Free: 1.800.SEE.FOAM • P: 610.436.4314 • F: 610.436.8436 • www.rusmarinc.com



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EQUIPMENT SELECTION GUIDE

Pneumatic Foam Unit	Self-Contained?	Freeze-Protected?	Throw Range	Coverage/min. at 3" Depth	Tank Capacity	Approximate Coverage per Tank with 600 Series	Approximate Coverage per Tank with 900 Series	Compatible with all Products?	Self-Propelled?
NTC/8	No. Requires compressed air supply.	No	25 Feet	86 ft ² /min.	Varies. Customer Supplied	Varies.	Varies.	No. Not compatible with AC-667SE	No. Skid Mounted
PFU 400/25	Yes	Yes	35 Feet	267 ft ² /min.	400 Gallon	4,500 ft ² @3" depth	5,600 ft ² @2" depth	Yes	No. Trailer Mounted
PFU 1600/40	Yes	Yes	60 Feet	428 ft ² /min.	1,600 Gallon	18,000 ft ² @3" depth	22,400 ft ² @2" depth	Yes	No. Trailer Mounted
PFU 2500/60	Yes	Yes	80 Feet or Spray Manifold	642 ft ² /min.	2,500 Gallon	28,000 ft ² @3" depth	35,000 ft ² @2" depth	Yes	Yes

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PRODUCT DATA SHEET

LONG DURATION FOAM AC-645

GENERAL DESCRIPTION

AC-645 Long Duration Foam is a patented product which produces a thick, long-lasting, viscous foam barrier for immediate control of dust, odors and volatile organic compounds (VOCs). AC-645 is designed for use with Rusmar Pneumatic Foam Units.

AC-645 foam is recognized by the Environmental Protection Agency and the U.S. Army Corps of Engineers as providing superior emission control for a period up to 17 hours. AC-645 has been specified for use at Superfund and other hazardous waste sites across the United States and Canada.

FEATURES

- Biodegradable
- Will not add to treatment costs
- No ambient temperature limitations
- Easy to use
- More effective than tarps
- Non-reactive
- Non-hazardous
- Safe for workers and the environment
- Requires only water dilution
- No clean up necessary
- Non-combustible
- Covers any contamination source

APPLICATIONS

The primary application for AC-645 is control of odors, VOCs and dust during active excavation and for overnight coverage of contaminated soils at hazardous waste sites. AC-645 can also be applied on top of liquid surfaces.

SPECIAL ODOR CONTROL PROBLEMS

The remediation of hazardous waste sites often includes excavation of soil contaminated with odorous compounds. AC-645 has little or no odor itself, although a pleasant wintergreen or vanilla scent can be added. It forms a barrier between contaminants and the atmosphere and can be applied during active excavation to provide an immediate and effective barrier to minimize odors. It is completely biodegradable and poses no threat to workers, neighboring residents or ground water. AC-645 will not add to soil volume or treatment costs.



PRODUCT DATA SHEET

LONG DURATION FOAM AC-645

AC-645 can also be applied on top of trucks for emission control during transport of materials such as contaminated soils or sewage sludge. Ammonia tests performed on trucks containing sewage sludge resulted in a drop of concentration levels from 170 ppm prior to foaming down to 6 ppm after coverage with AC-645.

- Minimizes worker exposure
- Maintains fence-line odor and VOC emission limits
- Works on lagoon and pond closures
- Can be applied to near vertical or liquid surfaces

FUGITIVE DUST

At hazardous waste sites, fugitive dust can present a health hazard. AC-645 can be applied on top of the dusty material to prevent any wind-borne emissions. There is no need to mobilize equipment to immediately cover with soil or tarps. The Pneumatic Foam Unit can be filled and placed at the site to be used at a moment's notice.

EMERGENCY SPILL CLEAN UP

In emergency spills, odor and VOC control is often difficult because of the terrain and accident conditions. AC-645 Long Duration Foam can be applied to any shaped object, as well as steep slopes, water, mud, snow and ice. It is non-flammable and non-reactive - difficult spill problems can be accommodated.

METHOD OF APPLICATION

AC-645 Long Duration Foam is supplied in either 450 pound (55 gal.) drums or by bulk load (approximately 46,000 pounds). Bulk shipments can be stored outside in a Rusmar Bulk Storage-Dilution System. The Bulk Storage and Dilution system is comprised of a 7000 gallon heated and stirred chemical storage tank and a microprocessor to accurately dilute and transfer the chemical. AC-645 is designed to be applied with a Rusmar Pneumatic Foam Unit. The Pneumatic Foam Units are available in a variety of sizes to accommodate a range of site conditions and application needs.



REMEDATION PRODUCT DATA SHEET

PNEUMATIC FOAM UNIT NTC / 8



Our most compact and portable foam generating system designed for small remediation applications. The NTC/8 can be mounted on the tongue of most standard air compressors and can be drum or auxiliary tank fed.

This system is completely air driven and comes equipped with pump, foam generator, hose and pick-up tube. The unit requires a source of compressed air.

FEATURES

- Simple to operate
- Remote control for one person operation
- Electrical system is powered by a 12 volt battery
- Minimal clean-up after use
- Durable, rugged construction
- Minimal preparation

SPECIFICATIONS

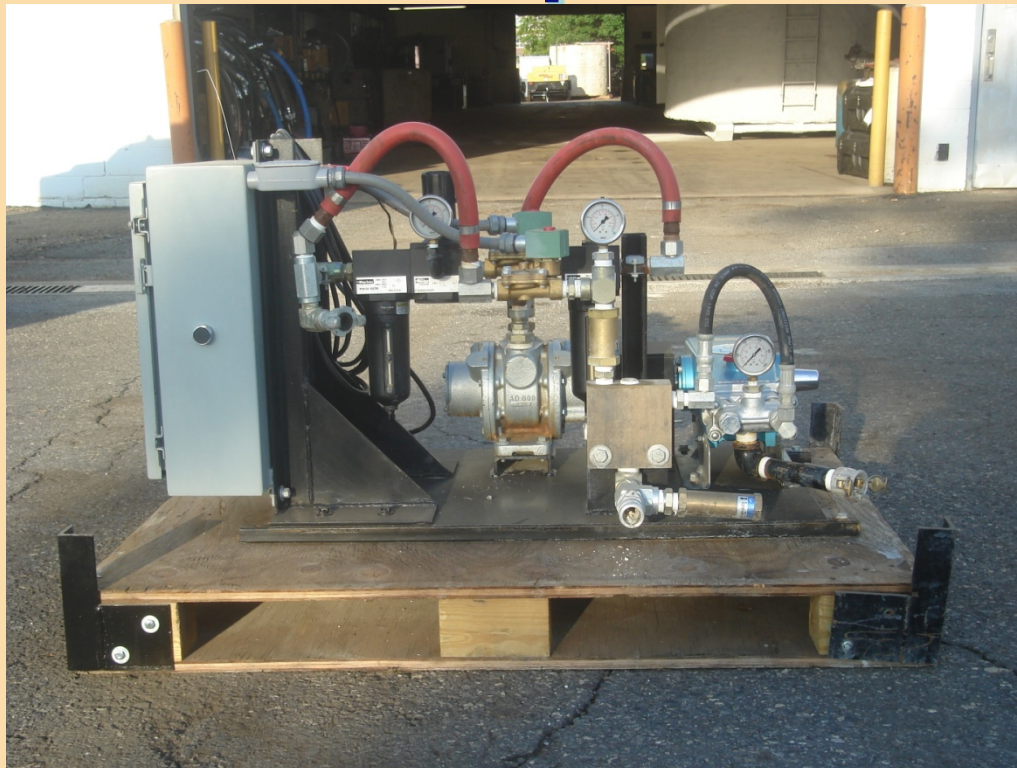
Coverage Rate.....90 Sq. Ft./Min. @ 3" depth
Compressed Air Required.....120 CFM @ 100 PSI
Size.....36"L x 23"W x 26"H
Weight.....375 Pounds
Hose.....100 Feet of 1" Diameter
Products.....AC-645 and All AC-900 Series Long Duration Foam Products



FOAM TECHNOLOGY

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NTC-8 Operation





FOAM TECHNOLOGY

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General Information

- Modular unit requiring customer supplied air and solution vessel.
- Designed to apply Rusmar's AC645 and AC900 series foams.
- Foam is dispersed via a 100' / 30.48m by 1" / 25.4mm hose.
- Requires 120CFM @ 100PSI.



FOAM TECHNOLOGY

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Safety Notes

- The foam and air system operate under high pressure always vent before servicing.
- Avoid rotating parts.
- Always wear proper PPE, Rusmar recommends: Safety shoes, gloves, safety glasses and hearing protection.
- Utilize “Whip Checks” on air connections when available.



FOAM TECHNOLOGY

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General Preparation

- Make certain "Master Power" switch is in the "Off" Position.
- Drain "Water Separator".
- Fill "Lubricator" if necessary. ISO 32 Hydraulic oil.
- Check Catpump oil level at the site glass, add if necessary. ISO 68 Hydraulic oil.



FOAM TECHNOLOGY

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System Connections

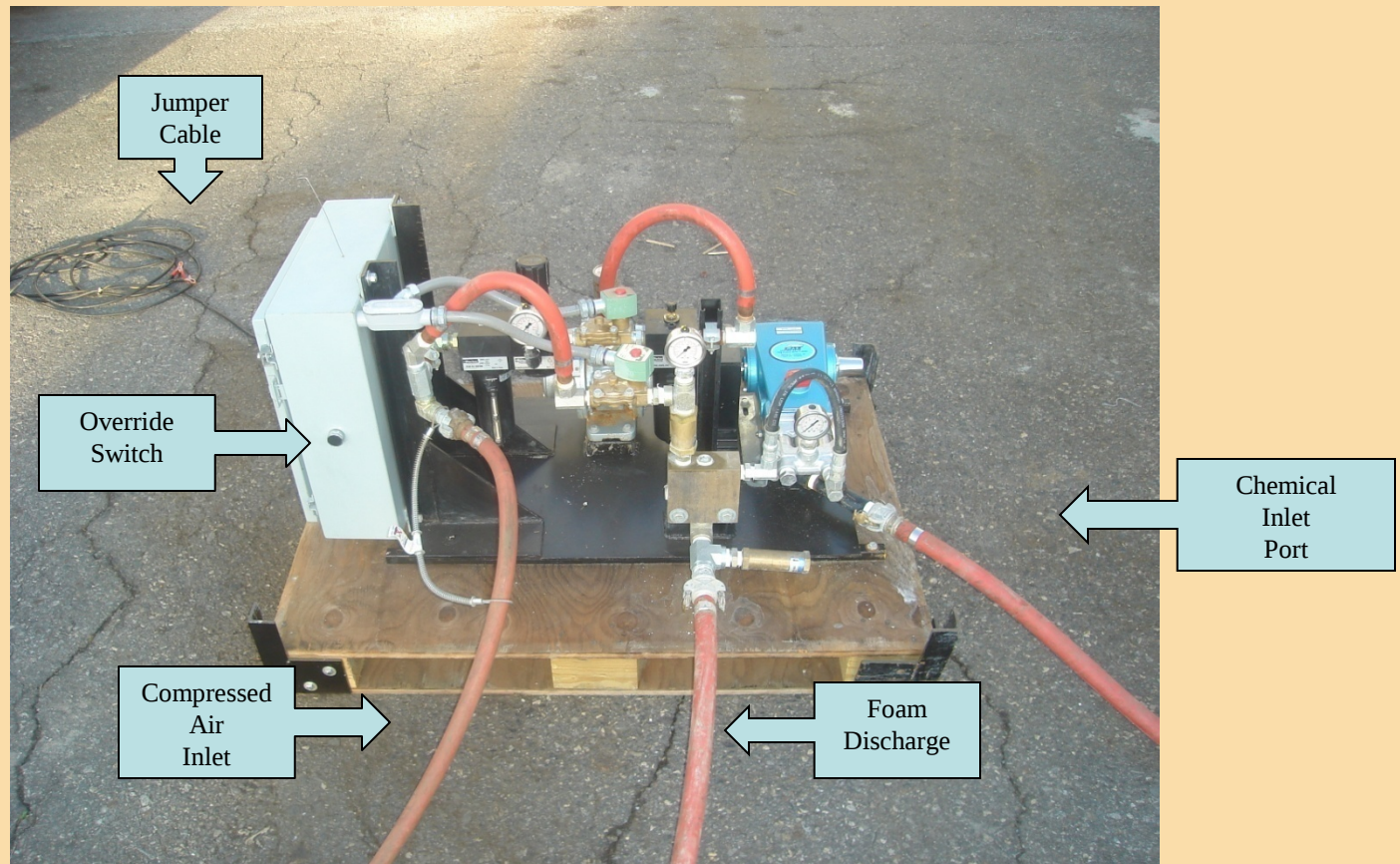
- Hook up the jumper cables to a 12 volt battery on your compressor, if negative ground, black to negative, red to positive.
- Connect airline from the compressor to the NTC-8 (Chicago fitting).
- Connect the 100'(30m) hose to the "Foam Discharge Port".
- Connect the 10'(3m) hose to the "Chemical" inlet.
- Fill "Inlet" hose with water to aid in priming and prevent pump damage.
- Connect open end of "Inlet" hose to dipleg and insert into a diluted drum of AC-645.
- **Never lay the dipleg on the ground or a dirty surface as contaminants could be introduced into the pump causing damage.**



FOAM TECHNOLOGY

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System Connections





FOAM TECHNOLOGY

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Foaming

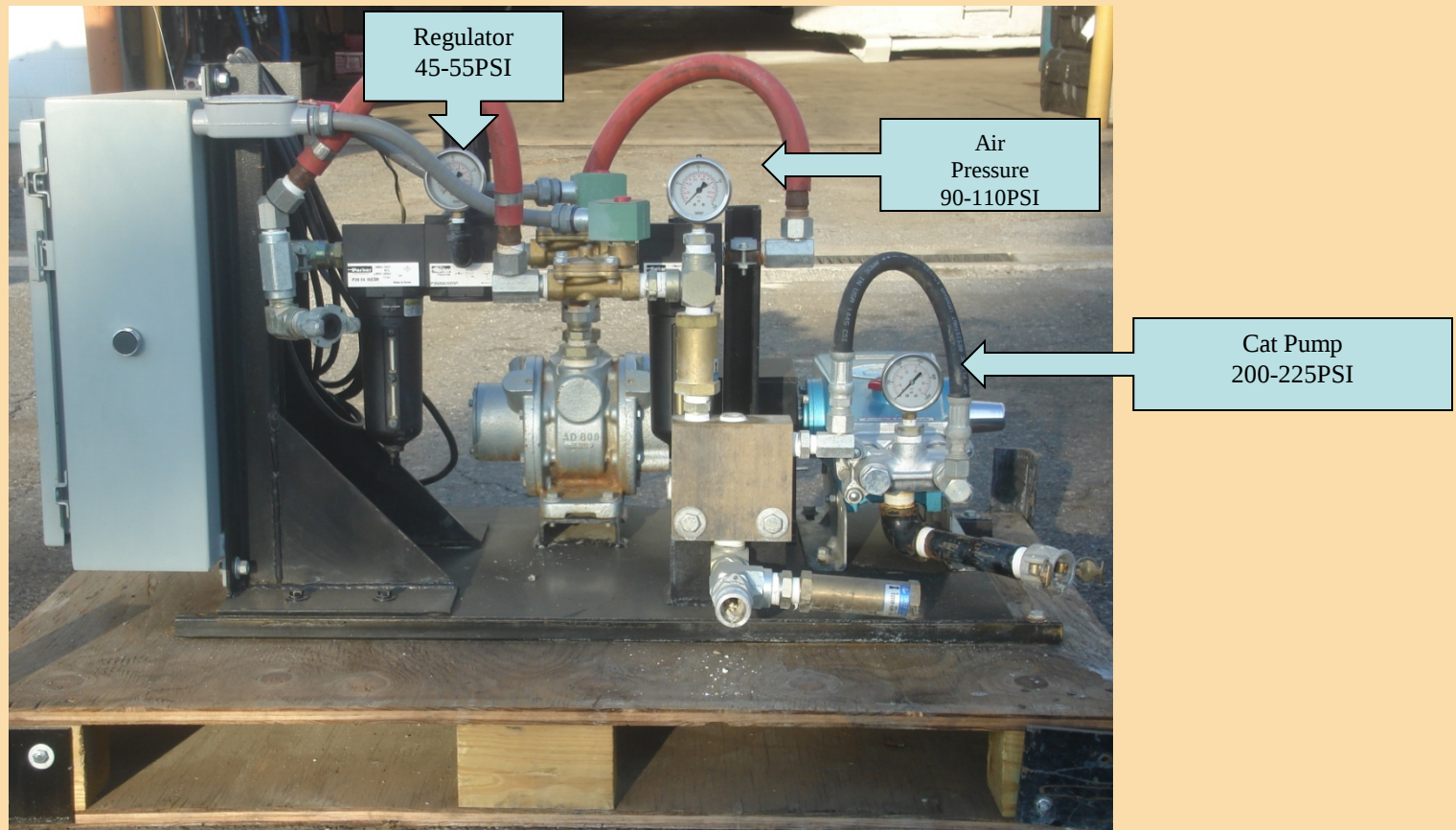
- Once ready to foam:
- Turn "Master Power" switch to "On" position.
- Firmly grasp "Foam Discharge" hose.
- Using the remote control or override button, start the NTC-8.
- The unit will run at a high RPM until primed, if this does not occur in a few seconds, shut off the unit and repeat the process.
- Foam desired area.
- Note operating pressures: Cat Pump 200-225PSI, Air 90-110PSI, Regulator 45-55PSI
- When foaming is complete press the remote or override button. The unit will purge itself for 30 seconds, make certain operator has a firm grasp on the discharge hose.



FOAM TECHNOLOGY

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Foaming





FOAM TECHNOLOGY

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Clean Up and Storage

- If done foaming for the day, run some fresh water through the system to clean.
- Turn off “Master Power” switch and disconnect jumper cables.
- In cold weather store inside to prevent damage from freezing.



SAFETY DATA SHEET

LONG DURATION FOAM AC-645

Section 1. Identification

GHS product identifier : LONG DURATION FOAM AC-645
Chemical name : Proprietary Surfactant.
Other means of identification : Aqueous anionic surfactant mixture.
Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Product use : Aqueous Surfactant. Spray application for VOC and Odor control.
Area of application : Industrial applications.

Supplier/Manufacturer : Rusmar, Inc.
216 Garfield Avenue
West Chester, PA 19380
Phone: 610-436-4314
Fax: 610-436-8436

e-mail address of person responsible for this SDS : info@rusmarinc.com
Website: www.rusmarinc.com

Emergency telephone number (with hours of operation) : 888 488 8044 or 212 682 1200
CHEMTREC 800 424 9300

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.
Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.
Response : Not applicable.
Storage : Not applicable.
Disposal : Not applicable.
Hazards not otherwise classified : None known.

Date of issue/Date of revision : 05/28/2015 **Date of previous issue** : No previous validation **Version** : 1 1/11

Section 3. Composition/information on ingredients

Substance/mixture : Substance
Chemical name : Proprietary Surfactant.
Other means of identification : Aqueous anionic surfactant mixture.

CAS number/other identifiers

CAS number : Not available.
Product code : Not available.

Ingredient name	Other names	%	CAS number
Proprietary Surfactant.	-	100	-

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
sulfur oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

- Large spill** : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8).
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Section 8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid. [Clear viscous liquid.]
- Color** : Translucent. White.
- Odor** : Odorless.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : 99°C (210.2°F)
- Flash point** : Not applicable.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not applicable.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : 3.3 kPa (25 mm Hg) [room temperature]
- Vapor density** : Not available.
- Relative density** : 1.01 to 1.06
- Solubility** : Easily soluble in the following materials: cold water and hot water.
- Solubility in water** : Easily soluble.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- SADT** : Not available.
- Viscosity** : Not available.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: Keep away from heat.
Incompatible materials	: No specific data.
Hazardous decomposition products	: Low levels of sulfur oxides on exposure to high temperatures (concentrate).

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Conclusion/Summary : Not expected.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Section 11. Toxicological information

Potential acute health effects

Eye contact	: No known significant effects or critical hazards.
Inhalation	: No known significant effects or critical hazards.
Skin contact	: No known significant effects or critical hazards.
Ingestion	: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: No specific data.
Ingestion	: No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Long term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Potential chronic health effects

Not available.

General	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Section 12. Ecological information

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b):** Not determined.

Clean Air Act Section 112 : Not listed

(b) Hazardous Air Pollutants (HAPs)

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No products were found.

SARA 313

Not applicable.

State regulations

Massachusetts : This material is not listed.

New York : This material is not listed.

New Jersey : This material is not listed.

Pennsylvania : This material is not listed.

California Prop. 65

None of the components are listed.

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	0
Flammability	0
Physical hazards	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
Not classified.	

History

Date of issue/Date of revision	: 05/28/2015
Date of previous issue	: No previous validation
Version	: 1
Prepared by	: IHS
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations

Section 16. Other information

References : HCS (U.S.A.)- Hazard Communication Standard
International transport regulations

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.