



DISTRIBUTED BY: R.E. CARROLL, INC.
1570 NORTH OLDEN AVENUE
TRENTON, N.J. 08638-3204 USA
PH: 609-695-6211/800-257-9365
orders@reacarroll.com

SAFETY DATA SHEET IRM 901

Section 1. Identification

Product name: IRM 901
Synonyms: Not available.
Relevant identified uses of the substance or mixture and uses advised against
Product use: ASTM Reference Fluid
Manufacturer: HollyFrontier Refining & Marketing LLC
1700 South Union Avenue
Tulsa, OK 74107
USA
info@hollyfrontier.com
Customer Service: (800) 456-4786
Emergency telephone number: CHEMTREC®(800) 424-9300

Section 2. Hazards identification

Classification of the substance or 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: Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements: Avoid contact with skin and clothing. Wash thoroughly after handling. Defatting of the skin. Prolonged or repeated contact may dry skin and cause irritation. Heated material can cause thermal burns.
Hazards not otherwise classified: This substance/mixture does not meet the PBT/vPvB criteria for REACH, Annex XIII.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture
CAS number/other identifiers
CAS number: Not applicable.
Product code: 101663

Ingredient name	%	CAS #
Distillates (petroleum), solvent-dewaxed heavy paraffinic	30-70	64742-65-0
Residual oils (petroleum) solvent dewaxed	30-70	64742-62-7

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

Based on our knowledge of our products, there are no additional ingredients present that are classified as hazardous to health or to the environment, which require reporting in this section. As applicable, see Section 8 for Occupational Exposure Limits.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact:	Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Remove contact lenses. If eye irritation persists, obtain medical treatment. For contact with heated product, flush immediately with plenty of cool water for at least 15 minutes. Get medical attention.
Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and continue monitoring by trained personnel. Get immediate medical attention if victim is unconscious. Seek medical attention if cough or other symptoms develop.
Skin contact:	Wash with soap and water. Get medical attention if irritation develops or persists. Remove contaminated clothing and wash before reuse. For contact with heated product, flush immediately with plenty of cool water for at least 15 minutes.
Ingestion:	If large amounts are swallowed, contact a physician or Poison Control Center. Never give anything by mouth to an intoxicated, unconscious or convulsing person. Get medical attention immediately.

Most important symptoms/effects, acute and delayed

Eye contact:	Repeated exposure may cause slight irritation to the eyes. May cause tearing, burning sensation and redness. Contact with product at elevated temperatures may result in thermal burns.
Inhalation:	Vapors and/or mists which may be formed at elevated temperatures may be irritating to eyes, nose, throat, upper respiratory tract and lungs.
Skin contact:	Repeated exposure may cause skin dryness, irritation and defatting of the skin. Contact with product at elevated temperatures may result in thermal burns.
Ingestion:	Gastrointestinal tract irritation with possible nausea, vomiting and diarrhea.

See toxicological information (Section 11).

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

Notes to physician:	Treat symptomatically. Contact physician or Poison Control Center immediately if ingested or if large quantities have been inhaled.
Specific treatments:	No specific treatment.
Protection of medical responders:	Do not attempt to take action without suitable protective equipment. See Section 8 for additional information on protection measures. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media: In case of fire, use water spray (fog), regular foam, dry chemical or carbon dioxide. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Unsuitable extinguishing media: Do not direct solid streams into the hot burning liquid.

Specific hazards arising from the chemical: Use water spray or fog to cool exposed containers. Closed containers of this material may explode when subjected to heat from surrounding fire.

Hazardous thermal decomposition products: Decomposition products may include the following materials: carbon dioxide, carbon monoxide and other asphyxiants.

Special protective actions for fire-fighters: Fight fire from a safe distance and protected location. Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers.

Special protective equipment for fire-fighters: Wear structural firefighting gear. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Remove ignition sources. Ensure adequate ventilation. Do not attempt to take action without suitable protective equipment. See Section 8 for additional information on protection measures.

For emergency responders: Remove ignition sources. Ensure adequate ventilation. Do not attempt to take action without suitable protective equipment. See Section 8 for additional information on protection measures.

Environmental precautions: Do not allow spilled material to runoff and contact soil, waterways, drains and sewers.

Methods and materials used for containment and clean-up

Small spill: Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Use appropriate personal protective equipment as stated in Section 8. Advise the Environmental Protection Agency (EPA) and appropriate state agencies, if required. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Vacuum or sweep up material and place in a disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if possible without risk. Approach release from upwind. Prevent entry of release material into sewers, waterways, basements or confined areas. Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Use appropriate personal protective equipment as stated in Section 8. Advise the Environmental Protection Agency (EPA) and appropriate state agencies, if required. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Vacuum or sweep up material and place in a disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Wear appropriate personal protective equipment (see section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation or wear appropriate respirator. High pressure skin injection is a medical emergency. The injury will not appear serious at first but within a few hours, the affected tissue will appear swollen, discolored and extremely painful. Follow all SDS/label precautions even after container is emptied because it may contain product residue.

Advice on general hygiene practices: Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Remove contaminated clothing and protective equipment prior to entering eating areas.

Conditions for safe storage, including any incompatibilities: Flash point is greater than 200°F (93.3°C). 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.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure Limits
Oil mist, mineral	OSHA PEL
	TWA: 5 mg/m ³
	ACGIH TLV
	TWA: 5 mg/m ³ Form: Inhalable fraction
NIOSH REL (United States, 1/2013)	TWA: 5 mg/m ³ 10 hours. Form: Mist

Appropriate engineering controls: Use with adequate ventilation. Local exhaust ventilation may be necessary when handling or using this product to keep exposure to airborne contaminants below the exposure limit.

Personal Protective Measures

Personal hygiene measures: Wash thoroughly after handling. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye and face protection:	Safety glasses with side shields or splash proof chemical goggles are recommended to protect against the splash of product.
Skin protection	
Hand protection:	Protective gloves are recommended to protect against contact with product. The gloves listed may provide protection against permeation: neoprene, nitrile, and Viton®. Gloves of other chemically resistant materials may not provide adequate protection.
Other body protection:	Where splashing is possible, fully chemical resistant protective clothing (e.g. acid suit) and boots are recommended. Wear insulated impervious protective gear to protect against the splash of product. The following materials are acceptable for use as protective clothing: neoprene, nitrile, and Viton®. Wear appropriate footwear.
Respiratory protection:	Concentration in air determines the level of respiratory protection needed. Use only NIOSH certified respiratory equipment. Respiratory protection is not usually needed unless product is heated or misted. Half-mask air purifying respirator with dust/mist filters or HEPA filter cartridges is acceptable for exposures to ten (10) times the exposure limit. Full-face air purifying respirator with dust/mist filters or HEPA filter cartridges is acceptable for exposures to fifty (50) times the exposure limit. Protection by air purifying respirators is limited. Use a positive pressure-demand full-face supplied air respirator or SCBA for exposures greater than fifty (50) times the exposure limit. If exposure is above the IDLH (Immediately Dangerous to Life and Health) or there is the possibility of an uncontrolled release, or exposure levels are unknown, then use a positive pressure-demand full-face supplied air respirator with escape bottle or SCBA. Wear a NIOSH-approved (or equivalent) full-face-piece airline respirator in the positive pressure mode with emergency escape provisions.

Section 9. Physical and chemical properties

Appearance

Physical state:	Liquid
Color:	Amber
Odor:	Slight
Odor threshold:	Not available.
pH:	Not applicable.
Melting point:	Pour point [ASTM D5950]: -12°C (10°F)
Boiling point:	Not available.
Flash point:	Open cup [ASTM D92]: 243°C (469°F)
Evaporation rate:	Not available.
Flammability (solid, gas):	Not available.
Lower and upper explosive (flammable) limits:	Not available.
Vapor pressure:	< 0.000013 kPa (< 0.0001 mm Hg) [20°C (68°F)]
Vapor density:	Not available.
Specific gravity:	0.88 [16°C (60°F)] [ASTM D1298]
Solubility:	Insoluble in the following materials: cold water and hot water.
Partition coefficient:	
n-octanol/water:	2 to ≥ 6
Auto-ignition temperature:	402°C (756°F) [ASTM D2155]
Decomposition temperature:	Not available.
Viscosity:	Kinematic [40°C (104°F)]: 212 mm ² /s (212 cSt) [ASTM D445] Kinematic [100°C (212°F)]: 18 mm ² /s (18 cSt) [ASTM D445] Kinematic (100°F): 1123 SUS [ASTM D2161]
Molecular weight:	609 g/mole [ASTM D2502]

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.
Conditions to avoid:	Keep away from heat, sparks and flame.
Incompatible materials:	Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition products may include the following materials: carbon dioxide, carbon monoxide, and other asphyxiants.

Section 11. Toxicological information

Likely Routes of Exposure: Routes of entry anticipated: Oral, Dermal, Inhalation.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:	Repeated exposure may cause slight irritation to the eyes. May cause tearing, burning sensation, and redness. Contact with product at elevated temperatures may result in thermal burns.
Inhalation:	Vapors and/or mists which may be formed at elevated temperatures may be irritating to eyes, nose, throat, upper respiratory tract and lungs.
Skin contact:	Repeated exposure may cause skin dryness, irritation and defatting of the skin. Contact with product at elevated temperatures may result in thermal burns.
Ingestion:	Gastrointestinal tract irritation with possible nausea, vomiting and diarrhea.

Information on toxicological effects

Basis for Assessment: Product has not been tested. Information given is based on data on individual components or similar materials in acute oral, dermal and inhalation studies.

Acute Toxicity: Not classified as acutely toxic.

Distillates (petroleum), solvent-dewaxed heavy paraffinic

Acute Inhalation Toxicity: Rat, LC50>5.53 mg/l, 4 hours

Acute Dermal Toxicity: Rabbit, LD50>2000 mg/kg

Acute Oral Toxicity: Rat, LD50>5000 mg/kg

Residual oils (petroleum), solvent dewaxed

Acute Dermal Toxicity: Rabbit, LD50>2000 mg/kg

Acute Oral Toxicity: Rat, LD50>5000 mg/kg

Skin corrosion/irritation: Non-irritating to the skin. Heated material can cause thermal burns.

Eye irritation: Non-irritating to the eyes. Heated material can cause thermal burns.

Skin sensitization: No evidence of skin sensitization.

Respiratory sensitization: No data available.

Germ cell mutagenicity: Not considered to be a germ cell mutagen.

Carcinogenicity: The mineral oil(s) in the product contain < 3% DMSO extract (IP 346). Not considered to be carcinogenic.

Reproductive toxicity: Not considered to be toxic to the reproductive system.

Teratogenicity: Not considered to be teratogenic.

Aspiration hazard: Not expected to be an aspiration hazard.

Specific target organ toxicity (single exposure): Acute exposure studies show no evidence of systematic toxicity.

Specific target organ toxicity (repeated exposure): Repeat dose toxicity data shows no evidence of target organ toxicity.

Section 12. Ecological information

Basis for Assessment: Product has not been tested. Information given is based on data on individual components or similar materials.

Samples of similar paraffinic oils have been tested in fish, invertebrates and algae.

Distillates (petroleum), solvent-dewaxed heavy paraffinic

Acute EC50 >100 mg/l, Algae, 72 hours

Exotoxicity: Acute EC50 >100 mg/l, Daphnia, 48 hours
 Acute LC50 >100 mg/l, Fish, 96 hours
 Chronic Effects: Appropriate read-across data indicate a NOEL of 3 mg/l based on reproduction for aquatic invertebrates.

Persistence and degradability: Not readily biodegradable. Considered to be inherently biodegradable.

Bioaccumulative potential: Constituents of other lubricant base oils show measured or predicted values for log Kow from 2 to ≥ 6 and are considered potentially bioaccumulative.

Mobility in soil: Not available.

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

Section 13. Disposal considerations

Disposal methods: Follow federal, state and local regulations. This material is not a RCRA hazardous waste, if not contaminated. If material has been "used", RCRA criteria (ignitability, reactivity, corrosivity and toxicity) must be determined.

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 manner. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers may retain some product residue. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated	Not regulated	Not regulated	Not regulated
UN proper shipping name	—	—	—	—	—	—
Transport hazard class(es)	—	—	—	—	—	—
Packing group	—	—	—	—	—	—
Environmental hazards	No	No	No	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.

Special note: Not regulated by DOT if at room temperature and in containers of 119 gallons or less.

Section 15. Regulatory information

U.S. Federal regulations

United States Toxic Substance Control Act (TSCA)

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) Inventory.

TSCA Exempt (R&D, LVE, Polymer Exemption, Other) Not applicable.

TSCA Section 4 Not applicable.

TSCA Section 5 Not applicable.

TSCA Section 5(a)(2) Not applicable.
 TSCA Section 6 Not applicable.
 TSCA Section 12[b] Not applicable.

Superfund Amendments and Reauthorization Act (SARA)

EPCRA (SARA) Title III Section 313 Toxic Chemical Release Inventory (TRI) This product does not contain any chemicals in excess of the applicable de minimis concentration that are subject to the reporting requirements of Section 313.

EPCRA (SARA) Title III Section 302 Extremely Hazardous Substances Reporting Quantities This product does not contain any chemicals listed under Section 302.

EPCRA (SARA) Title III Section 311 Hazardous Classes

Immediate (acute) health hazard	Yes
Delayed (chronic) health hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

Other Federal regulations

Chemical Facility Anti-terrorism Standards (6 CFR 27), Appendix A, Chemicals of Interest: Not listed.
CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) 40 CFR 302.4: Not regulated.
RCRA (Resource Conservation and Recovery Act) 40 CFR Part 261: Not listed as RCRA hazardous waste as shipped.

State regulations

Illinois None of the components of this material are listed.
Louisiana None of the components of this material are listed.
Massachusetts Listed as 8012-95-1: (Oil Mist, Mineral).
Michigan None of the components of this material are listed.
Minnesota Not determined.
New York None of the components of this material are listed.
New Jersey This material is listed as Mineral Oil (highly refined).
Pennsylvania This material is listed as Mineral Oil Mist.
California Proposition 65 This material does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65. For more information go to www.P65Warnings.ca.gov.

International regulations

International lists

Australia Inventory (AICS) The components of this material are listed or exempted.
 Canadian Domestic Substance List (DSL) The components of this material are listed or exempted.
 Canadian Non-domestic Substances List (NDSL) The components of this material are not listed.
 China inventory (IECSC) The components of this material are listed or exempted.
 European EINECS Inventory The components of this material are listed or exempted.
 European ELINCS Inventory The components of this material are not listed.
 Japan Existing & New Chemical Substances (ENCS) This material is listed or exempted.
 Korea Existing Chemical Inventory (KECI) The components of this material are listed or exempted.
 Korea Toxic Chemicals Control Law The components of this material are not listed.
 Malaysia Inventory (EHS Register) The components of this material are not listed.
 New Zealand Inventory of Chemicals (NZIoC) The components of this material are listed or exempted.

Philippines Inventory (PICCS)	The components of this material are listed or exempted.
Taiwan Inventory (CSNN)	The components of this material are listed or exempted.
Turkey Inventory and Control of Chemicals (CICR)	The components of this material are listed or exempted.

Section 16. Other information

Hazard Ratings:

Key: 0 = least; 1 = slight; 2 = moderate; 3 = high; 4 = extreme

HMIS Rating: Health =1; Fire = 1; Reactivity = 0

NFPA Rating: Health =1; Fire = 1; Reactivity = 0

Date of issue/Date of revision: 5/15/2017

Date of previous issue: 5/11/2015

Version: 3

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
 IMDG = International Maritime Dangerous Goods
 LogK_{ow} = logarithm of the octanol/water partition coefficient
 PBT = Persistent, Bioaccumulative and Toxic
 UN = United Nations
 vPvB = Very Persistent and very Bioaccumulative

DISCLAIMER: The information and recommendations contained within this document are, to the best of HollyFrontier Refining & Marketing LLC – Tulsa’s knowledge and belief, accurate and reliable as of the date issued. This information and recommendations are offered for the user’s consideration and examination. We extend no warranties and make no representations as to the accuracy or completeness of the information contained herein and assume no responsibility regarding suitability of this information for the users intended purpose or for the consequence of its use. It is the user’s responsibility to satisfy itself that the product is suitable for the intended use and ensure proper health, safety, and other necessary information is followed.